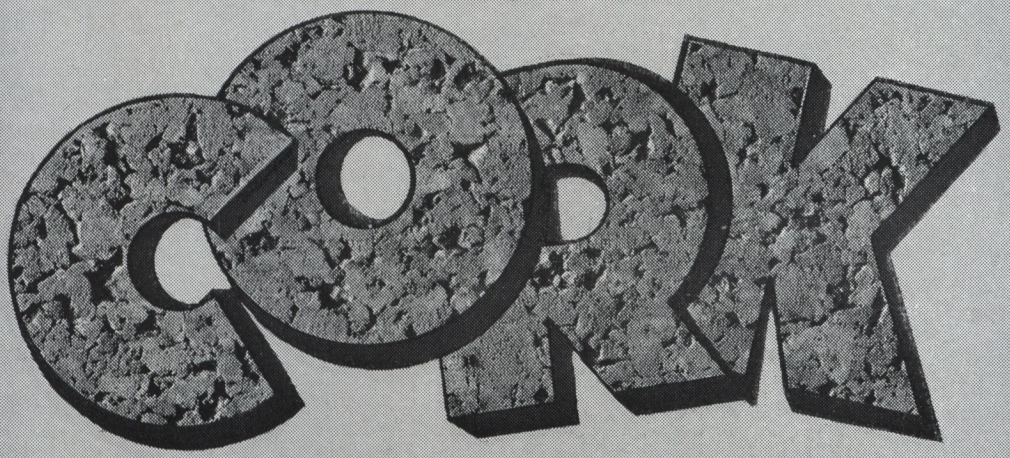
CORINCO



INSULATION PRODUCTS

CORK INSULATION COMPANY, INC.

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A NATIONAL ORGANIZATION

To assure prompt and adequate service the Cork Insulation Co., Inc., has established branch offices at strategic points throughout the United States. In addition, independent distributors are located in many principal cities. Each of our branch offices and most of our distributors maintain ample warehouse stocks to facilitate deliveries.

IMPORTING FACILITIES

Our buyers travel throughout the cork centers of the world selecting and purchasing only the finest quality materials. After the purchases are completed and the materials are ready for shipment, these buyers supervise its weighing and loading into America-bound ocean freighters, which convey the rough cork directly to our factory at Wilmington, Delaware.

MODERN MANUFACTURING PLANT

Completed in the fall of 1930, our factory is one of the newest, most modern and efficient plants in which oven-baked corkboard is made. It was designed and equipped to produce an "unusually fine" group of products. Constant improvements in machinery and equipment have been made to assure dependable products of the highest quality.

GUARANTEE

Behind each and every Corinco product is an organization of tremendous financial strength, the management of which is in the hands of competent, aggressive men of wide experienec in the cork business. They recommend and guarantee Corinco products because they know that these products are the combined result of high grade materials and fine workmanship.



ENGINEERING AND ERECTION SERVICE



CORINCO CONSULTING ENGINEERS

We take great pride in the fact that our engineering staff is made up of men who have had long experience in solving the technical and practical problems of refrigeration insulation. Each of our branch offices is managed by a competent insulation engineer who is ready at all times to assist architects, owners, and builders in the solution of insulation problems.

WIDE EXPERIENCE IN ALL TYPES OF SPECIAL INSULATION SERVICES

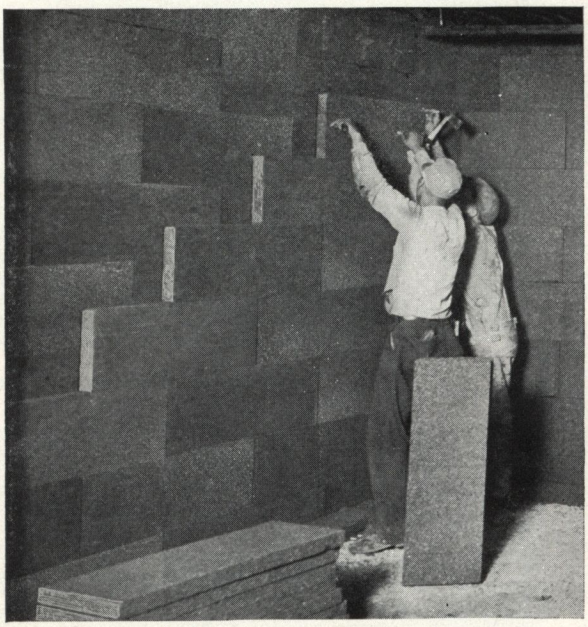
The experience gained in successfully solving the diversified and complex problems of low temperature insulation is our guarantee that the insulation recommended will meet the requirements.

PREFERENCES

Because each installation is supervised and inspected by an experienced insulation engineer many users of insulation have changed to Corinco products. They know that they will be assured of best results. Our branch offices and distributors will gladly point out the superiority of Corinco products. Please feel free to consult with the branch office nearest you.

CORINCO INSTALLATION SERVICE

Because low temperature insulation work is exacting in nature, we have found that the safest and most economical plan of operation is for us to maintain crews of trained construction men at each of our branch offices. These crews, directed by competent superintendents, do better work in shorter time, and, consequently, at a minimum cost.



Installing Corinco Corkboard

CORK INSULATION COMPANY, INC.

155 EAST 44th STREET • NEW YORK, N. Y.

Branch Offices

BOSTON, MASS.
332 "A" Street

CHICAGO, ILL.
Corinco Insulation Co., Inc.
320 North La Salle Street

LOS ANGELES, CAL.
4804 De Kalb Street

PHILADELPHIA, PA.
17th & Sansom Streets

ST. LOUIS, MO.
2711 Olive Street

SAN FRANCISCO, CAL.
462 Bryant Street

WASHINGTON, D. C.
1425 "H" Street, N. W.

SEATTLE, WASH.
2410 First Avenue, South

Factory: Foot of Christiana Avenue, WILMINGTON, DELAWARE

Story of Cork AND IT'S UNUSUAL



Stripping Bark from Tree



Unloading Raw Cork at Factory

CORK - THE BARK OF THE CORK OAK TREE

Strange as it may seem, cork as it is known in present day life, is in reality part of the outer bark of a tree.

SOURCES OF SUPPLY

The commercial cork oak tree, an evergreen species and different in this respect from our native northern oak, grows only around the rim of the Mediterranean territory. Large commercial forests are located in and along the coasts of Spain and Portugal, and smaller forests are found in Northern Africa.

STRIPPING THE BARK

At periodic intervals under governmental inspection and regulation, the outer bark is stripped away from the trunk and lower limbs as shown in the accompanying photograph.

After the trees have been stripped the bark is loosely piled and allowed to dry for several days. The bark is then bound into crude bundles and carried down from the hills to the nearest railroad station or warehouse.

PREPARATION FOR MARKET

When the cork bark is received at the warehouse it is boiled, scraped, trimmed, graded and baled preliminary to its being offered for sale and for shipment to the various cork processing plants located throughout the world.

TRANSPORTATION

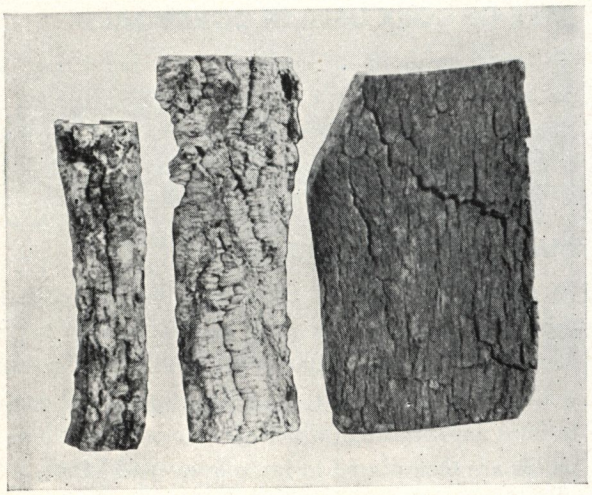
Cork purchased for American interests is loaded into general cargo or tramp vessels and imported into this country where it is converted into the many products used in our domestic, commercial, and industrial activities.

CORK—A NATURAL INSULATOR

The natural insulating properties of cork have long been known, particularly to the Spanish and Portuguese farmers who observed that the cork oak tree was able to withstand the hot blistering winds of their locality while other trees and plants, not so hardy, were scorched and killed.

Further investigation showed these farmers that this cork oak bark, when used in the construction of their homes, helped to exclude the summer heat and the winter cold.

This crude form of insulation was the forerunner of our present day commercial insulating methods.



"Virgin" Cork "Refugo" Cork

The first stripping of the tree produces cork of a rough, greyish uneven surface and is known as "virgin" cork. This is suitable only for grinding to produce cork insulation and cork composition products. The second stripping is considerably better than the first, but it is not until the third stripping that a tree begins to produce its finest quality of cork, of which about 60% is suitable for the manufacture of all natural products, such as bottle stoppers, floats, cork balls, etc.

The other 40% of the cork produced by the second and subsequent strippings is known as "refugo" which, while not suitable for products such as previously mentioned, is entirely satisfactory for grinding.

UNIQUE CELLULAR CONSTRUCTION

The thick outer bark of the cork oak tree is made up of millions of tiny cells in marked contrast to the bundles of long fibres running lengthwise in the bark of most other trees. These tiny cells, which imprison small quantities of air, average approximately 1/1000 of an inch in diameter and are separated from each other by a microscopic strand of resinous gum.

Modern scientific investigation has proven that, next to a complete vacuum, a minutely divided air space is one of the most effective barriers against the passage of heat and cold.

Cork then, by its peculiar cellular structure, is a natural insulator against the passage of heat and cold.

Virtually all of the physical properties of cork are based either directly or indirectly upon this unique cellular construction. The most important physical properties of cork are (1) buoyancy —light weight; (2) compressibility; (3) resilience; (4) resistance to moisture and liquid penetration; (5) frictional quality; (6) low thermal conductivity; (7) ability to absorb sound and vibration; (8) stability; and (9) chemical inertness.

These properties of cork account for its manifold uses and also for the existence of the far-flung cork industry. Those characteristics of particular interest to the building industry are discussed in some detail in the following pages.



Typical Bale of Cork Bark

Corinco Corkboard

TYPE OF CORK USED IN CORKBOARD

Today we insulate our homes and our industrial buildings in a slightly different manner from that used by the Spanish and Portuguese farmers. We use the outer bark of the cork oak tree in another form—corkboard.

MAKING OF CORKBOARD

In the manufacture of corkboard the raw cork bark is ground into granules varying in size from 3/8 to 3/4 of an inch. These granules after being cleaned and screened are poured into steel molds, carefully packed and compressed to form a mat through which air cannot filter. These loaded molds are then placed in large ovens and baked.

NO ARTIFICIAL BINDER USED

The natural chemical properties of raw cork eliminate the necessity of any artificial binder. During the baking process the natural resinous gums surrounding the air cells are released sufficiently to bind the compressed granules into a self-supporting cork block.

SIZES OF CORINCO CORKBOARD

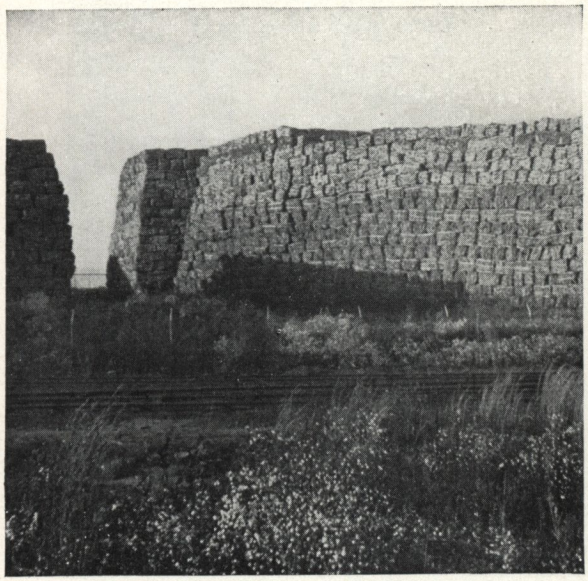
After these blocks of cork have cooled they are taken from the molds and passed through trimming and splitting machines, emerging as finished corkboard in various sizes and thicknesses. These standard sizes are 12 x 36 inches and 24 x 36 inches and from 1, 1½, 2, 3 and 4 inches in thickness.

USES OF CORKBOARD

Corkboard is used for the insulation of individual rooms or entire buildings in the cold storage industry, ice cream hardening rooms, cold storage locker plants, fur storage vaults, fruit ripening rooms, refrigerator cars and truck bodies, and for the insulation of roofs in the textile and many other industries where condensation is likely to be found.

It is widely used for the insulation of ducts, air washers, etc., in air conditioning restaurants, department stores and commercial buildings. In theatres and radio broadcasting studios corkboard is unsurpassed for acoustical correction. The sound deadening properties of cork make it invaluable for the isolation of machinery vibration in industrial plants and other types of buildings and it is also used extensively for the abatement of noise in hospitals, libraries and schools.

In the marine field, cork insulation is used for the protection and preservation of perishable cargo and it has contributed much to the safety and comfort of the passengers and crews of ocean liners and other naval vessels.



Raw Cork Storage



Corinco Cork Board (Actual Size)

ADVANTAGES OF CORK INSULATION BOARD

1. Low Thermal Conductivity

Because of its low thermal conductivity, corkboard is generally recognized as the standard material in the low temperature insulating field. In fact, it is common parlance in the refrigerating and low temperature trades to speak of insulation materials in terms of "cork equivalent".

Two well known independent testing laboratories have recently completed a series of tests on corkboard and various substitute materials to determine the relative efficiency and performance of each type of material. Both laboratories found that corkboard had a lower thermal conductivity than any of the other materials. The results of these tests are shown below:

RESULTS OF THERMAL CONDUCTIVITY TESTS— DRY MATERIALS

Insulation	Thermal Conductivity (k) 60° F Mean Temperature		Relative Insulating Value Corkboard = 100	
	LAB I	LAB II	LAB I	LAB II
Corkboard*	0.277	0.270	100.	100.
Shredded Redwood Bark	0.294	0.279	94.6	96.8
Animal Hair Board	0.315	0.288	88.3	93.8
Wood Fibre Board	0.322	0.302	86.3	89.4
Mineral Wool Board	0.324	0.318	85.8	84.9
Vegetable Fibre Board	0.356	0.336	78.1	80.4

* Corkboard values are averages of values for boards of five different manufacturers.

2. High Resistance to Moisture and Capillarity

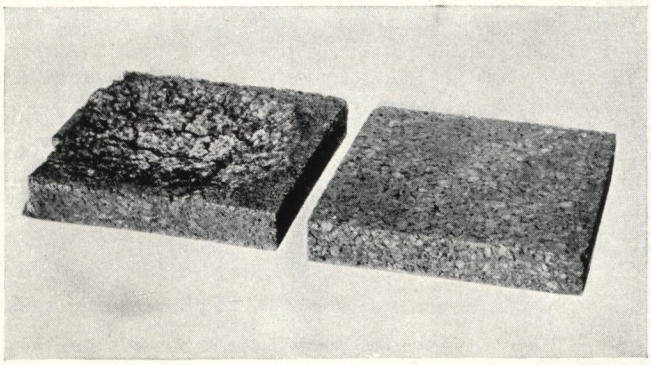
Low temperature insulation, to be satisfactory, must retain its operating efficiency over long periods and must be able to resist the deteriorating effects of moisture. Cork, being cellular rather than fibrous in nature, has a natural buoyancy and resistance to water.

This inherent resistance to water is further fortified by our baking process. This process has two very important effects. First, it drives out any remaining sap or moisture in the air cells, thus increasing the amount of dry imprisoned air in the cork. Second, it heats up and melts the natural resinous gums surrounding the cells. This melted gum flows through the entire mass of granules and binds them together into a single air-tight and water-proof board.

RESULTS OF MOISTURE ABSORPTION TESTS

Insulation	Full Size Specimens		Cut Specimens	
	% Absorption by volume	Relative Absorption Corkboard =100	% Absorption by volume	Relative Absorption Corkboard =100
Corkboard*	10.9	100.0	14.6	100.0
Mineral Wool Board	15.1	138.5	30.8	211.0
Vegetable Fibre Board	0.7	6.4	24.5	167.8
Wood Fibre Board	59.0	541.3	83.4	571.2
Shredded Redwood Bark	23.0	211.0	not tested	not tested
Animal Hair Board	11.7	107.3	13.2	90.4

* Corkboard values are averages of values for boards of five different manufacturers.



Before and After Fire Test

3. Fire Retardant

The two laboratories previously referred to also conducted fire tests on the various materials in accordance with the methods prescribed by the United States Bureau of Standards. In no instance did the flame break through the corkboard being tested. All substitute materials, however, were either completely consumed or the binder burned out leaving an ash residue or a mass of inorganic material.

As soon as the flame was removed the corkboard ceased to burn and all smoldering stopped within one minute. The substitute materials continued to flame or smolder until completely consumed. All substitute materials were classed as "combustible" while corkboard was described as "fire retardant".

4. Structural Strength

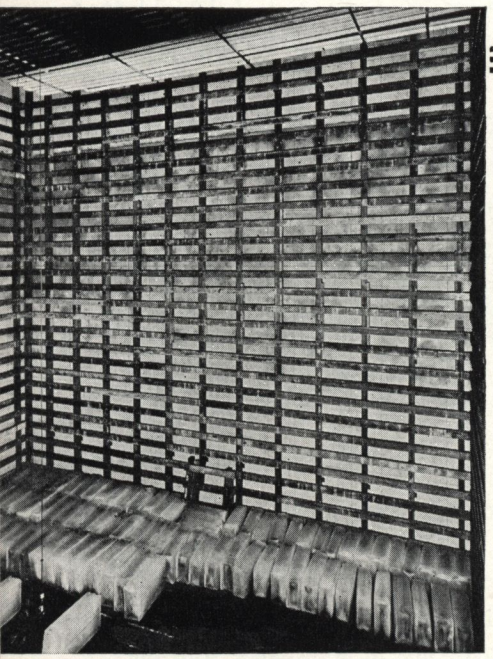
Two of the outstanding advantages of corkboard over other insulating materials are (1) its structural strength and (2) the ease with which it can be erected. It can be cut or sawed, and nailed into place like lumber in frame construction, or set in Portland cement mortar or other plastic material against stone, concrete, brick, or hollow tile, on either walls or ceilings.

No permanent external supports or retaining walls are necessary even in the construction of solid self-supporting cork partitions. Corkboard forms a tight and enduring bond with either Portland cement plaster or asphalt and can be satisfactorily finished in the usual manner.

5. Sanitary, Rot and Vermin Proof

Sanitation measures demand that an insulating material shall not harbor vermin or germs, that it shall be free from offensive odors, and that it shall not disintegrate. Corkboard has no natural odor and it cannot harbor vermin. Since no glue, pitch, or other artificial binder is used in its manufacture, corkboard can be applied with certainty that it will not disintegrate but will remain intact.

GENERAL RECOMMENDATIONS



Cork Insulation Reinforced with wood Stays on high walls of ice Storage Room

WALLS

Air tends to move through the walls of a cold storage space toward the low temperature side. When this occurs, the moisture in the air will be deposited if the dew point is reached. Should this condensation of moisture take place in the body of the insulation, its efficiency would be seriously impaired.

Theoretically the outer wall surface of the building is the ideal place to waterproof and vaporproof against infiltration. Unfortunately this is impossible in most cases and the only alternative is to treat the inside of the wall before erecting the insulation.

Although both cement mortar and hot asphalt are specified for erecting wall cork, asphalt is recommended as it provides protection against air infiltration.

On very high walls, it is advisable to provide additional supports for the cork by installing intermediate horizontal or vertical wood stays bolted to the walls.

CEILINGS

The preferred method of insulating ceilings is to place the insulation on top of the floor above, connecting it with the wall insulation through slots around the floor. Where slots cannot be provided ribbands of cork should be installed on the ceiling below, adjacent to the wall, to eliminate heat loss through the ceiling structure at this point.

On new concrete structures where insulation must be placed on the underside of the ceiling slab, the cork should be placed in the forms before concreting rather than to apply to the insulation to the underside of the finished slab.

If this method is not feasible it is necessary to use one of the less desirable forms of installation, such as erection with cement mortar or hot asphalt. Where the cork is erected with cement mortar it is important to securely prop the cork—this method is not recommended for ceilings of any considerable size. Where hot asphalt is used, wood nailing strips should first be bolted to the concrete, and the cork securely nailed thereto.



Placing Cork in Concrete Forms for Insulating Ceiling Below

ROOFS

Roof insulation is generally placed immediately on top of the structural roof and the membrane applied directly to the cork surface. This is the ideal method of preventing infiltration of air. Since the roof exposure is usually greater than that of any other exterior surface of the building, it is advisable to provide more insulation at that point.



Applying Three Layers of Cork Insulation on the Upper Side of Roof Slab

FOR INSTALLING CORKBOARD

THICKNESSES OF INSULATION REQUIRED

One of the most important elements of a refrigerating system is proper insulation. In this respect corkboard has been accepted in general as a standard. Insulation is therefore referred to in terms of its equivalent.

To determine the proper thickness of corkboard required several factors must be considered, such as:

Cost of Producing Refrigeration
Climatic Conditions
Type of Building
Temperature to be maintained
Nature of Materials to be Stored

The total heat leakage through the walls, floors, ceilings, and roofs is a governing factor in establishing costs of refrigeration.

The maximum permissable rate of this heat transfer must be ascertained by considering the aforementioned factors. The heat transmission chart on page 17 may be used as an aid in determining the heat transmission through various types of construction.

The various surfaces may be calculated with Corinco Corkboard of different thicknesses until the proper thickness has been reached to reduce the overall transmission to the established maximum.

Under average conditions, the thicknesses of Corinco Corkboard required to economically maintain various temperatures are as follows:

RECOMMENDED THICKNESS OF INSULATION

Room Temperature	*Recommended Corkboard Thickness*
45° and above	2″
35° to 45°	3″
20° to 35°	4″
5° to 20°	5″
—5° to +5°	6″
—20° to —5°	8″

RECOMMENDED STORAGE TEMPERATURES IN DEGREES F
According to Various Authorities

Apples	31–33	Cucumbers	36–38	Ice Cream	15	Oysters (shells)	33–43
Asparagus	32–35	Dates	45–55	Lard	33–40	Parsnips	32–35
Beans (dried)	32–45	Eggs	30–35	Lemons	35–55	Peaches	31–45
Beef (fresh)	33–37	Fish (fresh)	20–30	Lambs	32	Pears	30–36
Beef (dried)	36–40	Fish (fresh-water frozen)	17–20	Livers	20–30	Pork	20–34
Beer (barrels)	32–38	Fish (canned)	33–36	Maple Syrup and Sugar	40–45	Potatoes	34–50
Beer (bottles)	45	Fish (dried)	25–40	Meats (canned)	30–40	Poultry (frozen)	10–30
Berries (fresh, 10 days)	35–40	Flowers (cut)	36	Meats (brined)	35–43	Poultry (to freeze)	0–22
Butter	10–32	Fruits (canned)	30–40	Meats (fresh)	33–35	Poultry (long carry)	10–30
Butter (to freeze)	20–22	Fruits (dried)	35–40	Melons	35–36	Raisins	55
Cabbage	31–35	Furs (undressed)	35	Milk	32–38	Salt Meat Curing Room	32
Cantaloupes	40	Furs (dressed)	25–35	Mutton (fresh)	32–35	Sardines (canned)	35–40
Carrots	32–35	Game (frozen)	10–28	Mutton (frozen)	25–28	Sauerkraut	35–38
Celery	31–35	Game (to freeze)	0–20	Nuts (in shells)	30–40	Sausage Casings	20–30
Cheese	28–35	Game (long carry)	10–28	Nursery Stock	30	Scallops (frozen)	16
Chestnuts	33–40	Grapes	30–36	Oatmeal	38–42	Syrup	35–45
Chocolate (dipping room)	65	Ginger Ale	35–36	Oleomargarine	20–35	Tobacco	35–42
Chocolate (to cool)	40	Hams (not brined)	20–35	Onions	32–36	Veal	32–34
Cider	30–35	Hogs	30–33	Oranges	32–45	Watermelons	34–40
Cigars	35–42	Honey	36–45	Oxtails	30–32	Wines	40–50
Cranberries	32–40	Hops	32–35	Oysters (tubs)	25–35	Woolens	25–28
Cream	33–35	Ice	28				

ACCESSORIES USED IN CONSTRUCTION

To obtain satisfactory results, aside from the proper thickness of insulation, it is imperative that suitable construction materials be used. Each of the following Corinco products is designed for its particular function and will provide maximum satisfaction in every respect.

Asphalt

For the erection of corkboard in asphalt it is of great importance to use the proper grade. Corinco Asphalt is odorless and possesses all of the necessary qualifications with reference to proper ductibility, melting point, and penetration. Corinco Asphalt Primer is cut back with petroleum spirits from the same grade of asphalt.

Emulsified Asphalt

Corinco Emulsified Asphalt differs decidedly from the ordinary types of asphalt, paints and asphalt cement in that it is odorless, tasteless, non-inflammable and mixes readily (cold) with such aggregates as Portland cement, gravel and sand.

It is odorless, tasteless and fire resistant, and offers positive protection against fumes, acids, alkalies and brine drip. It remains elastic and ductile under extremely cold temperatures and will withstand comparatively high temperatures without sagging or flowing. It is ideal for use as a finish where moisture conditions are severe within a refrigerated space. It is particularly adapted as a finish on the underside of ceiling insulation.

Aluminum Paint

All aluminum paints are not suitable for application over emulsified asphalt finishes. Corinco Aluminum Paint has no solvent effect on the emulsified asphalt, will not discolor, and is absolutely odorless.

Skewers and Nails

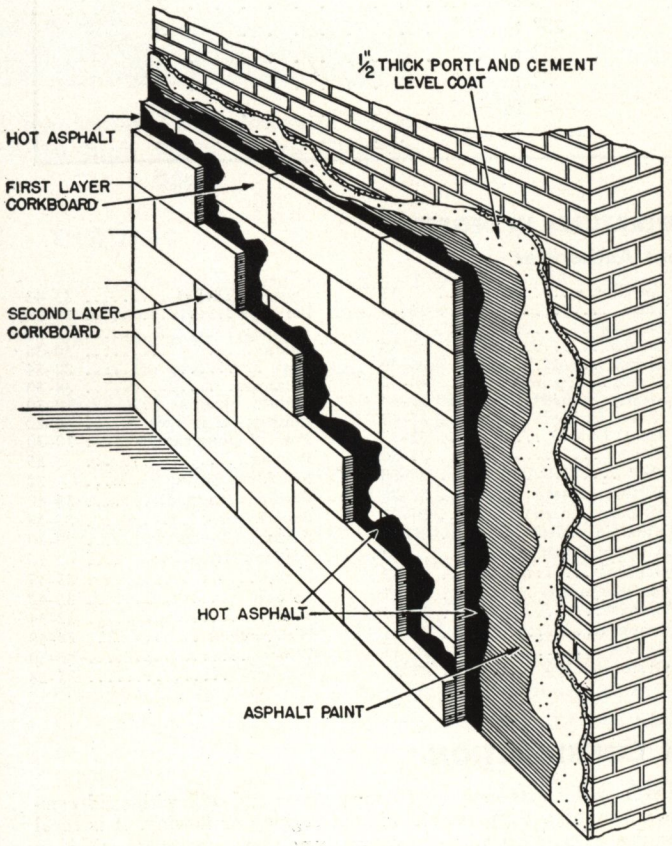
Because wood is a better non-conductor of heat, wooden skewers of the proper thickness and size are preferred to nails for securing one layer of corkboard to another. Experience has also proved that, in cork, wooden skewers have greater holding power than nails. However, where the corkboard is to be fastened directly to wood framing or sheathing, special galvanized wire nails are recommended. These nails are made of small gauge metal, have large heads, and will not rust.

GENERAL SPECIFICATIONS FOR WALLS
FOR MASONRY AND WOOD

NOTES CONCERNING SPECIFICATIONS

The specifications on this page and on pages 11, 12, 13 and 14 are given to cover typical conditions which are commonly encountered. For special conditions, details of the most satisfactory type of installation and specifications will be gladly supplied by our insulation engineers who are available at the main office and at the various branch offices listed on page 3.

The following specifications are based on two-layer construction. For single layer construction, apply as described for the first layer only.



Specification No. 1

WALLS—MASONRY

(Two layers of Corkboard, both layers applied in hot asphalt.)

The surfaces of all masonry walls against which Corkboard is to be applied must be thoroughly cleaned of all dirt, dust, loose mortar, etc. Where necessary to permit 100% contact of Corkboard they shall be made true and level with Portland cement plaster, mixed in proportions of approximately one part Portland cement and three parts of clean, sharp sand. A small amount of hydrated lime may be added, not exceeding 5%. Wall surfaces against which this leveling coat is to be applied should first be roughened to insure a proper bond. The plaster shall be applied in one or more coats, and be of a thickness to cover all high points. It shall be straightened with a straightedge and floated to a smooth finish.

After the plaster has thoroughly dried, one good coat of Corinco Asphalt Priming Paint shall be applied. When the paint has dried sufficiently, the first layer of Corinco Corkboard shall then be applied in hot asphalt.

A second layer of Corinco Corkboard shall be applied in hot asphalt, and additionally secured to the first with wooden skewers.

All joints must be butted tight, proper care being exercised to keep all edges and ends clean. Vertical joints in the first layer must be broken, and all joints in the second layer broken with respect to those in the first.

The exposed surfaces of Corkboard shall be finished as described under "Finishes" on page 13.

Specification No. 2

WALLS—MASONRY

(Two layers of Corkboard, first layer applied in cement mortar—second layer applied in hot asphalt.)

The surface of all walls against which Corkboard is to be applied shall first be thoroughly cleaned of all dirt, dust, loose mortar, etc., and, if necessary, roughened to insure a proper bond. Just before the Corkboard is applied the surface shall be sprinkled with water. The first layer of Corinco Corkboard shall then be applied in a bed of Portland cement mortar, approximately ½" thick, mixed one part Portland cement and two parts clean, sharp sand.

A second layer of Corinco Corkboard shall be applied against the first in hot asphalt, additionally secured with wooden skewers.

All joints must be butted tight, proper care being exercised to keep all edges and ends clean. Vertical joints in the first layer must be broken, and all joints in the second layer broken with respect to those in the first layer.

The exposed surfaces of Corkboard shall be finished as described under "Finishes" on page 13.

Specification No. 3

WALLS—WOOD SHEATHED

(Two layers of Corkboard, first layer nailed—second layer applied in hot asphalt.)

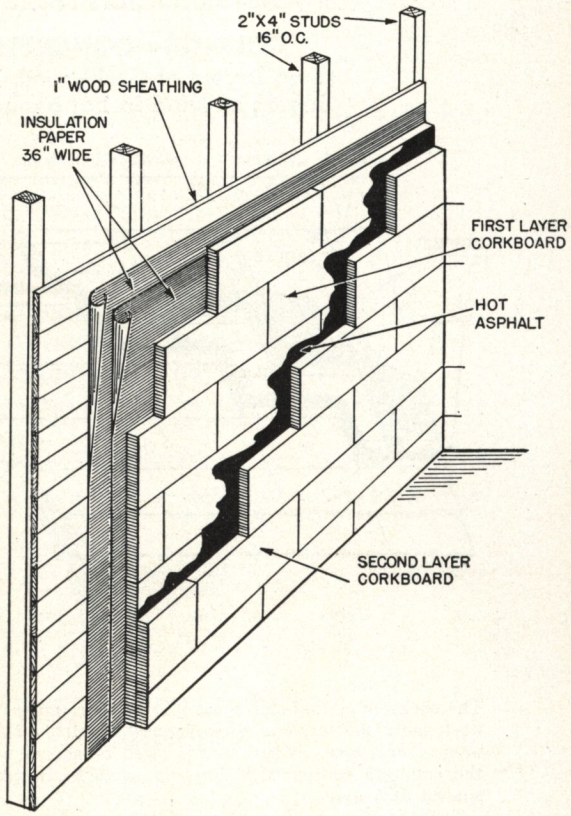
Directly against the wood sheathing two layers of waterproof insulating paper shall be applied, with edges well lapped.

The first layer of Corinco Corkboard shall be applied against the paper, and secured to the wood sheathing with special flat head galvanized wire nails of proper length.

The second layer of Corinco Corkboard shall be applied in hot asphalt, and additionally secured to the first layer with wooden skewers.

All joints must be butted tight, proper care being exercised to keep all edges and ends clean. Vertical joints in the first layer must be broken, and all joints in the second layer broken with respect to those in the first layer.

The exposed surfaces of Corkboard shall be finished as described under "Finishes" on page 13.

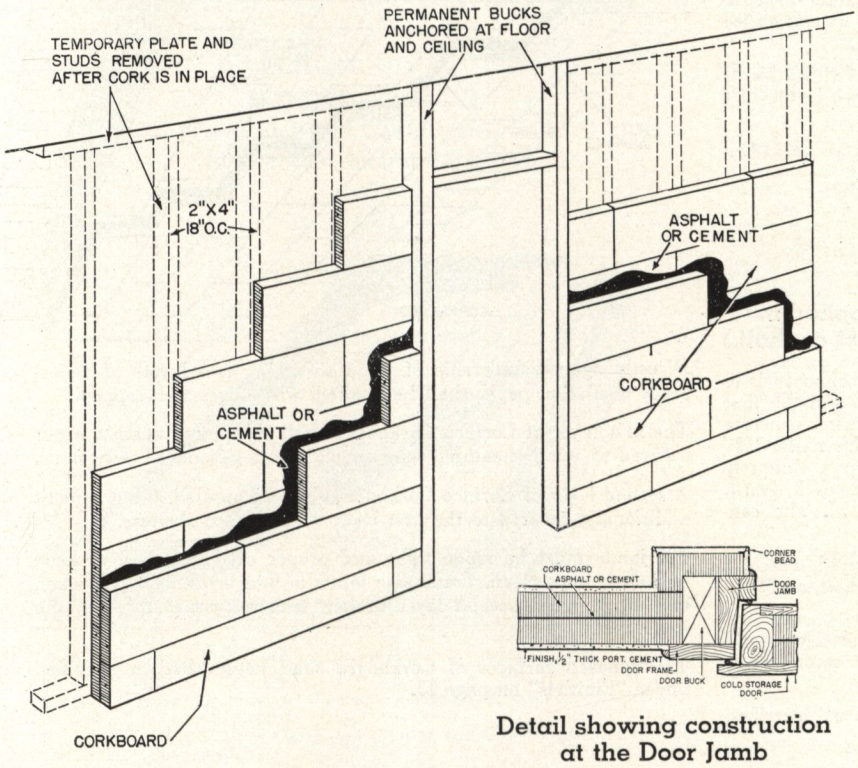


Specification No. 4

PARTITIONS—CORK—SELF-SUSTAINING

(Two layers of Corkboard, asphalt or cement mortar between.)

Temporary 2 x 4 studs shall be erected 18″ on center on a line with one side of the partition. Care must be exercised to have the studding plumb and in perfect alignment. (Where doors are to be set in partitions, permanent wooden bucks shall be set with wooden lintel between. Door bucks shall be securely anchored to floor and ceiling to withstand any shock due to opening and closing of doors.)



Detail showing construction at the Door Jamb

The first layer of Corinco Corkboard shall be erected on edge against temporary studs. Each cork board shall be securely toe-nailed to the abutting one, and likewise to walls, floor and ceiling, wherever possible, with wooden skewers.

All joints must be butted tight, and vertical ones broken.

A. Second Layer in Asphalt: A second layer of Corinco Corkboard shall be applied in hot asphalt, and additionally secured to the first with wooden skewers.

B. Second Layer in Portland Cement Mortar: The surface of the first layer shall be rough scratched with Portland cement mortar approximately ¼″ thick, mixed one part Portland cement, and two parts clean, sharp sand. After this coat has set, a second layer of Corinco Corkboard shall be applied in Portland cement mortar approximately ½″ thick mixed in same proportions as for scratch coat, and additionally secured to the first with wooden skewers.

All joints in the second layer must be butted tight, proper care being exercised to keep all edges and ends clean and broken with respect to those in the first layer.

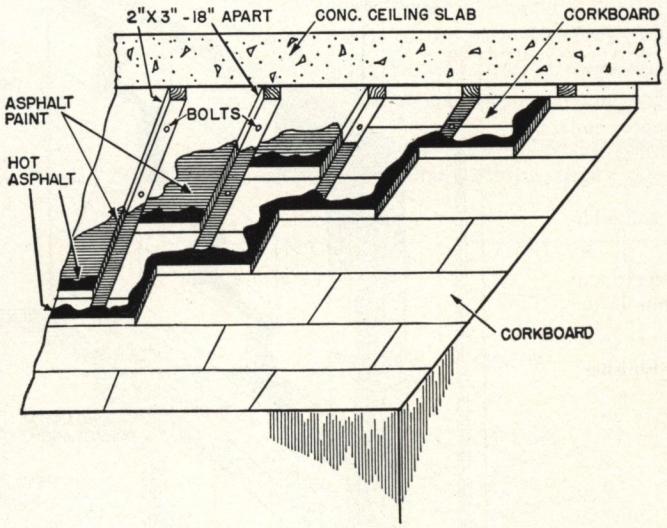
Each exposed side of Corkboard partition shall be finished as specified under "Finishes" on page 13.

Before removing temporary studs, finish the opposite side of partition.

Specification No. 5

CEILINGS—CONCRETE

(Two layers of Corkboard, both layers applied in hot asphalt.)



The concrete ceiling slab must first be thoroughly cleaned of all dirt, dust, loose mortar, etc. Wooden nailing strips 2¾" wide x (thickness of first layer of corkboard) shall be affixed to the underside of the concrete ceiling with suitable anchors. Nailing strips shall be spaced 18" apart.

Both concrete slab and nailing strips shall then be given one good coat of Corinco Asphalt Priming Paint. When paint has dried, the first layer of Corinco Corkboard shall be applied in hot asphalt against the concrete slab, tightly fitted between nailing strips and toe-nailed to same with special head galvanized wire nails.

A second layer of Corinco Corkboard shall be applied in hot asphalt, additionally secured to the first layer with wooden skewers and nailed to nailing strips with special head galvanized wire nails.

All joints must be butted tight; all edges and ends kept clean. Joints in the second layer must be broken with respect to those in the first layer.

The exposed surfaces of Corkboard shall be finished as described under "Finishes" on page 13.

Specification No. 6

CEILINGS—CONCRETE

(Two layers of Corkboard, First layer applied in concrete forms; Second layer applied in hot asphalt.)

The concrete ceiling forms in which the first layer of corkboard is to be placed shall be lowered (thickness of corkboard) and the first layer of Corinco Corkboard shall be laid dry in same. After concrete reinforcing has been laid, special head galvanized wire nails, 1½" longer than the thickness of the corkboard, shall be driven obliquely into the cork boards using approximately eight nails to each board. The heads shall be left protruding approximately 1½". The concrete shall be poured directly upon the corkboard.

After the concrete has set and the forms have been removed, a second layer of Corinco Corkboard shall be applied in hot asphalt, additionally secured to the first layer with wooden skewers.

All joints must be butted tight, keeping edges and ends clean, and transverse joints in the first layer broken. Joints in the second layer must be broken with respect to those in the first layer.

The exposed surfaces of Corkboard shall be finished as described under "Finishes" on page 13.

Specification No. 7

CEILINGS—CONCRETE

(Two layers of Corkboard, First layer applied in cement mortar—Second layer applied in hot asphalt.)

The concrete surface against which corkboard is to be applied must be roughened or hacked to insure a proper bond and then cleaned of all dirt, dust, loose mortar, etc. Sprinkle surface with water just before applying corkboard.

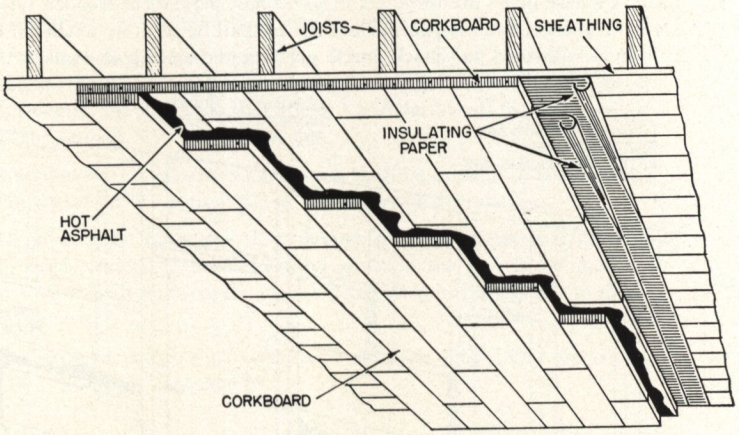
The first layer of Corinco Corkboard shall be applied in a bed of Portland cement mortar approximately ½" in thickness, mixed one part Portland cement and two parts clean, sharp sand. Each cork board shall be propped in place until a secure bond has been effected with the concrete ceiling slab. A second layer of corkboard shall be applied in hot asphalt additionally secured to the first layer with wooden skewers.

All edges and ends of corkboard shall be kept clean and all joints butted tight. Transverse joints in first layer shall be broken. All joints in second layer shall be broken with respect to those in the first layer. The exposed surfaces of Corkboard shall be finished as specified under "Finishes" on page 13.

Specification No. 8

CEILINGS—WOOD SHEATHED

(Two layers of Corkboard, First layer nailed—Second layer applied in hot asphalt.)



Directly against underside of wood sheathing two layers of waterproof insulation paper shall be applied, with edges well lapped.

The first layer of Corinco Corkboard shall be applied against paper secured to wood sheathing with special head galvanized wire nails.

A second layer of Corinco Corkboard shall be applied in hot asphalt additionally secured to the first layer with wooden skewers.

All joints must be made tight and proper care exercised to keep edges and ends clean. Transverse joints in first layer must be broken and all joints in second layer broken with respect to those in the first layer.

The exposed surfaces of Corkboard shall be finished as specified under "Finishes" on page 13.

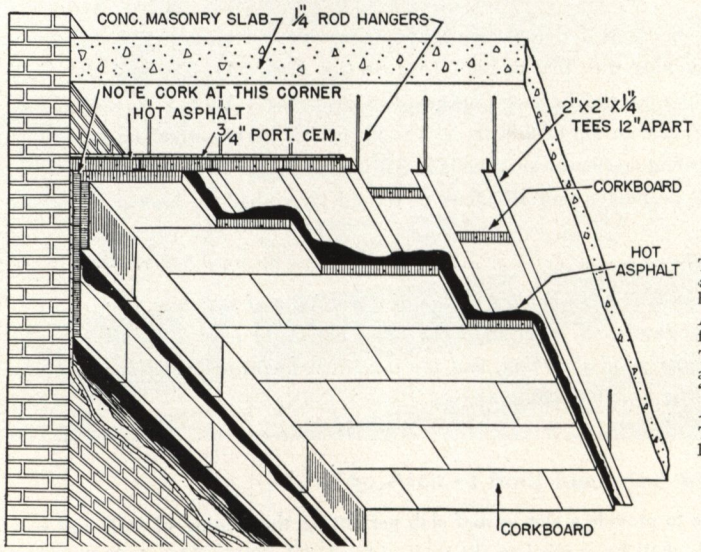
CEILINGS IN COLD STORAGE INSULATION

CONSTRUCTION • WOOD AND CONCRETE BASE FLOORS

Specification No. 9

CEILING—TEE-IRON CONSTRUCTION

(Two layers of Corkboard, First layer laid between Tee-Irons—Second layer applied underneath in hot asphalt.)



The Tee-irons shall be 2" x 2" x ¼" spaced 12" or 18" apart, ends resting on walls or other supporting structures and securely fastened to same. The tees shall be supported every 10 or 12 feet in length by hanger rods or other suitable means.

The first layer of Corinco Corkboard shall be placed between the Tee-irons with the edges rabbeted to fit on flanges of the tees tightly and rest flush with the bottom. A heavy layer of hot asphalt shall be applied over the upper surface of corkboard, followed by a coat of Portland cement mortar approximately ¾" thick, mixed one part Portland cement and three parts clean, sharp sand screeded to a smooth finish.

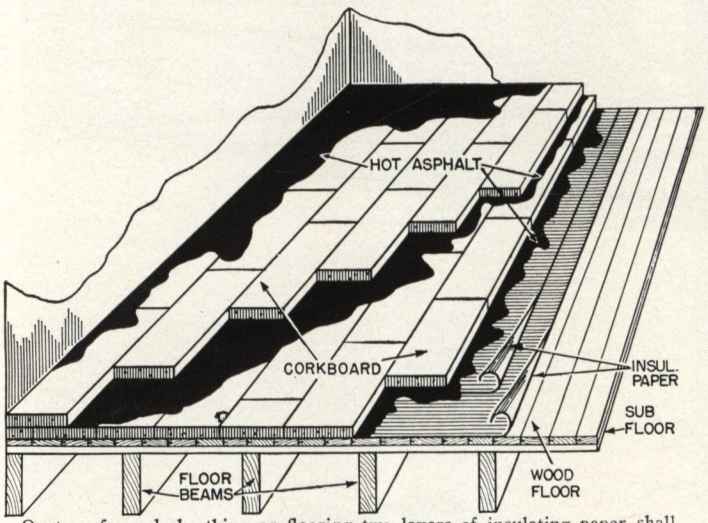
A second layer of Corinco Corkboard shall be applied to the underside of the first layer in hot asphalt, additionally secured with wooden skewers.

All joints shall be butted tight and broken with respect to those of the first layer. The exposed surfaces of Corkboard shall be finished as specified under "Finishes".

Specification No. 10

FLOORS—WOOD

(Two layers of Corkboard, both layers laid in hot asphalt.)



On top of wood sheathing or flooring two layers of insulating paper shall be laid, all edges well lapped.

The first layer of Corinco Corkboard shall be laid in hot asphalt directly on top of insulating paper.

A second layer of Corinco Corkboard shall be laid in hot asphalt upon the first layer.

The upper surface of the second layer shall be given a heavy coat of hot asphalt, left ready to receive a protective wearing finish as specified under "Finishes."

All joints must be butted tight, edges and ends kept clean.

Transverse joints in first layer must be broken. All joints in the second layer must be broken with respect to those in first layer.

> **Note:** *If a wooden wearing finish is to be installed over upper surface of second layer, wooden sleepers 4" wide by the thickness of corkboard used shall be inserted in second layer 18" or 24" apart.*

Specification No. 11

FLOORS—CONCRETE BASE

(Two layers of Corkboard, both layers laid in hot asphalt.)

The concrete base on which the insulation is to be applied must be smooth and level. The first layer of Corinco Corkboard shall be laid on top in hot asphalt.

A second layer of Corinco Corkboard shall be laid in hot asphalt upon the first layer.

The upper surface of the second layer shall be given a heavy coat of hot asphalt, left ready to receive a protective wearing finish as specified under "Finishes."

All joints must be butted tight, edges and ends kept clean.

Transverse joints in first layer must be broken. All joints in the second layer must be broken with respect to those in first layer.

> **Note:** *If a wooden wearing finish is to be installed over upper surface of second layer, wooden sleepers 4" wide by the thickness of corkboard used shall be inserted in second layer 18" or 24" apart.*

FINISHES

1. Portland Cement Finish: Finish exposed cork surfaces on walls, partitions, and ceilings with Portland cement plaster approximately ½" thick applied in two coats. Plaster shall be mixed in the proportions of 2 parts clean, sharp, brown sand, one part Portland cement, and not over 5% hydrated lime. The first coat shall be applied directly to cork surfaces and be approximately ¼" thick. This coat shall be scratched in two directions and allowed to dry before application of second coat.

The second coat shall be brought to an even surface by means of a darby or straight edge. After the plaster has set sufficiently, it shall be floated or troweled to a smooth, even finish. All angles and corners shall be clean and true, and outside corners protected with metal corner beads. To minimize shrinkage cracks, the plaster shall be scored into approximately 4 foot squares going through the finish to the scratch coat.

2. Corinco Emulsified Asphalt: Finish the exposed cork surfaces on walls, partitions, ceilings, etc., with Corinco Emulsified Asphalt in two coats. All surfaces to which Corinco Emulsified Asphalt is to be applied shall first be thoroughly cleaned, removing film of dust and all loose particles, etc. This can best be accomplished with a stiff fibre brush. One coat of Corinco Emulsified Asphalt Primer as taken from the container shall be troweled on, exercising care to cover all exposed cork surfaces. This coat should be permitted to dry approximately twenty-four hours.

Corinco Trowel Coat shall be applied as follows: To 1 part of Corinco trowel coat in which asbestos fibre has been incorporated at the factory, add 2 parts of clean, sharp sand. The sand must be screened and all oversize eliminated to insure a smooth and impervious finish. To this mixture add just enough clean, fresh water to bring to a proper troweling consistency. Care should be exercised to keep water content as low as possible.

Trowel on one coat mixed as above to surfaces which have previously been treated with Corinco Primer. This coat should be approximately 3/16" in thickness. After it has set sufficiently, but before it has hardened, which will depend on drying conditions, the surface shall be finished with a steel trowel. It may be tempered with a little cold water, if necessary, while troweling. Corinco Emulsified Asphalt should be applied at a temperature above 45° F.

3. Corinco Aluminum Paint: Corinco Aluminum Paint shall be applied directly to the mastic finish without any preparatory coat. Apply two coats of aluminum paint, flowing on each coat, allowing first to thoroughly dry before the second coat is applied. The aluminum paint must not be mixed until it is to be used. The proportions shall be two pounds of powder to one gallon of vehicle.

> **Note:** *Corinco Aluminum Paint has no solvent effect on the asphalt and will not discolor. When dry it is absolutely odorless.*

4. Monolithic Concrete Wearing Floor: A Monolithic concrete wearing floor shall be laid over the floor insulation approximately 3" thick at the low point and sloping to drain approximately 1" in ten feet. Screeds shall be set to determine the proper level or slope. The concrete shall be mixed one part Portland cement, 2 parts clean, sharp sand, and 4 parts of crushed stone or gravel, and only wet enough to flush under slight tamping.

After the concrete has sufficiently set, it shall be floated to a smooth, even surface and then finished with a steel trowel.

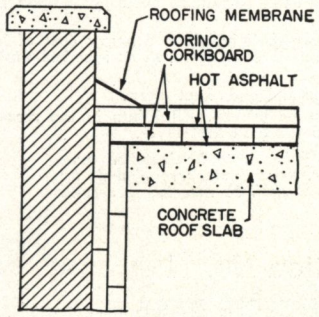


Figure 1

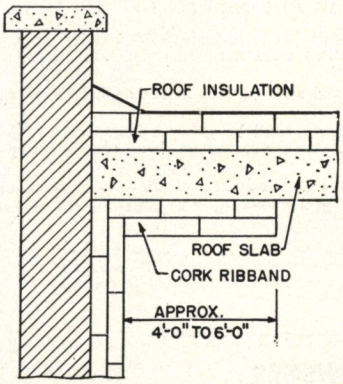


Figure 2

Specification No. 12

ROOFS—CONCRETE

(Two layers of Corkboard, both layers applied in hot asphalt.)

A slot shall be provided in concrete roof slab along all side walls wide enough to permit full thickness of insulation on walls joining with that of roof. (*See Section Figure* 1). The roof slab shall be smooth and level. Apply first layer of Corinco Corkboard in hot asphalt. Apply a second layer of Corinco Corkboard in hot asphalt on top of first layer. The upper surface of second layer shall be left uncoated over which a roofing membrane shall be laid. All joints must be butted tight, transverse joints in the first layer shall be broken and all joints in second layer shall be broken in respect to those in the first layer.

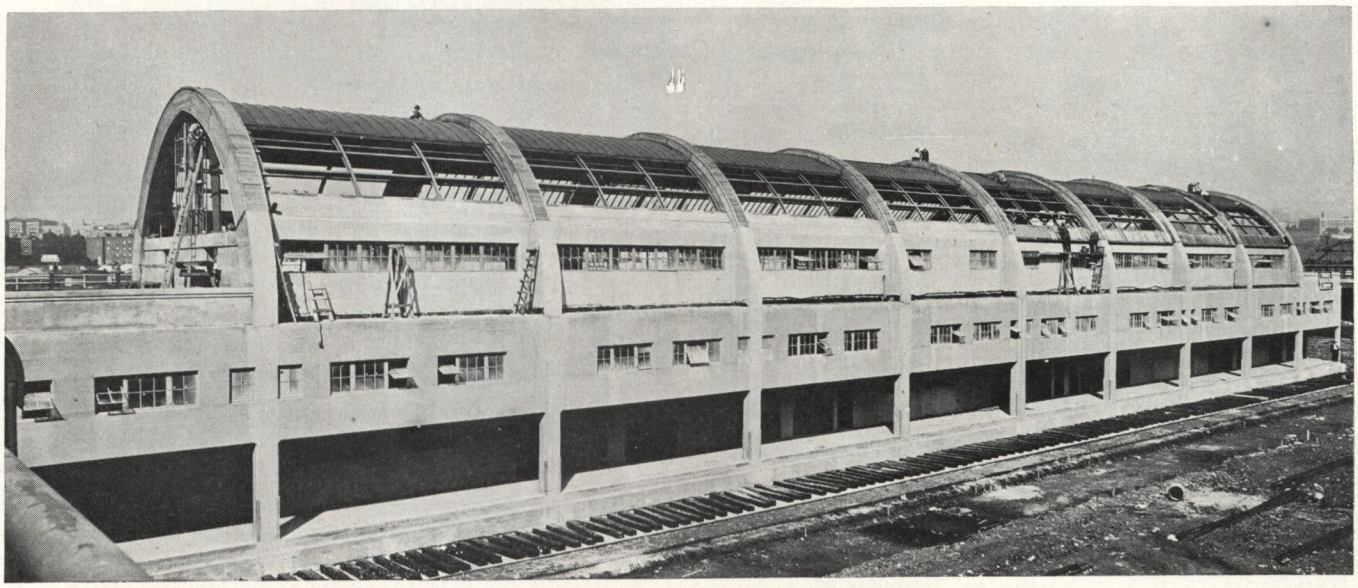
Note: *If the insulation is to be applied on top of a wooden roof structure, one layer of waterproof insulating paper with the edges lapped at least 3″ shall first be applied to the wood sheathing, and the insulation then applied in hot asphalt as specified for concrete slab.*

Ribbands

In the event it is not possible to provide a slot in roof slab permitting the joining of wall and roof insulation, a ribband of cork shall be applied to the underside of slab. This ribband shall extend out from walls approximately 4′0″ to 6′0″ and shall be applied as per specifications for ceilings. (*See Section Figure* 2).



Installing Three Layers of Corinco Corkboard on Wood Roof Deck



Top Arch of Roof Insulated with Corinco Corkboard

CORK INSULATION STOPS CONDENSATION AND HEAT LOSSES

To prevent condensation on the underside of roofs has been the function of Corinco Corkboard in many textile mills, packing houses, tobacco factories and other manufacturing plants. Such installations have not only reduced losses on spoiled goods, but have also provided profitable savings in fuel consumption.

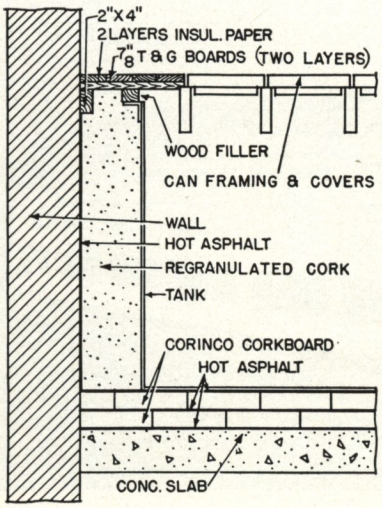
In determining the thickness of cork required for roof insulation consideration must be given to: (1) the nature of the roof construction; (2) the heat transmission of the roof itself; (3) the amount of humidity present during the manufacturing process; and (4) the temperature difference between the upper and under sides of the roof.

As an aid in determining heat losses, there is presented on page 17 a table of heat transmission coefficients as prepared by *"Heating & Ventilating"*—a recognized authority on this subject.



Installing Corkboard on the Roof of a Textile Mill

INSULATION FOR FREEZING TANKS



SPECIFICATION NO. 1

(Two layers of Corkboard on the bottom, sides with regranulated cork adjacent building walls.)

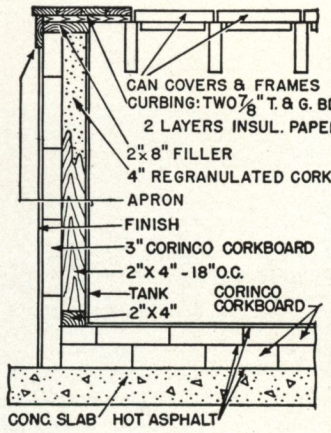
Bottom

The floor slab is to be smooth and level on which the first layer of Corinco Corkboard shall be embedded in hot asphalt. The second layer of Corinco Corkboard shall be applied on top of the first layer in hot asphalt, and the upper surface flooded with a heavy coat of the same material. The insulation must extend to the outside of the insulation on the sides of the tank. All joints shall be butted tight and transverse joints in the first layer broken. All joints in the second layer shall be broken with respect to those in the first layer.

Sides

The building wall shall be mopped with hot asphalt to height of tank. The space between wall and tank, approximately 12″ wide, shall then be filled in with regranulated cork well tamped in place.

Over the top of the side insulation and extending in to meet the can framing, a curbing shall be constructed consisting of two layers of 7/8″ Tongue and Groove boards with two layers of waterproof insulating paper between. The curbing shall be properly supported as indicated on drawing.



SPECIFICATION NO. 2

(Two layers of Corkboard on bottom with regranulated and corkboard on exposed sides.)

Bottom

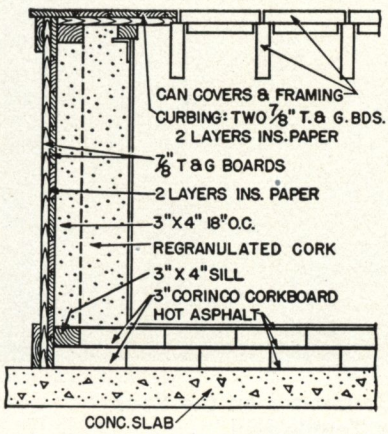
The bottom shall be insulated as described in Specification No. 1.

Sides

2x4 studding shall be erected against the sides of tank on 18″ centers. One layer of corkboard shall be nailed to studding with special galvanized nails. The space between the corkboard and tank shall be filled with regranulated cork well packed in place.

All joints between cork boards shall be butted tight and vertical joints broken. The exposed surfaces of corkboard shall be finished as described under "Finishes" on page 13.

A curbing shall be installed over top of insulation suitably supported as described in Specification No. 1 and indicated on drawing.



SPECIFICATION NO. 3

(Two layers of Corkboard on bottom, sides regranulated cork.)

Bottom

The bottom shall be insulated as described in Specification No. 1.

Sides

3x4 studding approximately 18″ on centers shall be erected approximately 12″ away from the tank sides. Studding shall be sheathed on the outside with two layers of 7/8″ Tongue and Groove boards with two layers of insulating paper between. The first layer of Tongue and Groove boards shall be nailed horizontally and the second layer vertically. The space between the tank and the retaining wall shall be filled with regranulated cork well tamped in place.

The curbing as described in Specification No. 1 shall be constructed over the top of the side insulation and extending in to meet the can framing as indicated on drawing.

HEAT TRANSMISSION COEFFICIENTS

MASONRY WALLS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air inside, 15 m.p.h. wind outside.

Construction No.	Interior Materials → / Exterior Materials	Thickness, Inches	A Plain Wall, no Plaster	B ½" Plaster direct on Walls, no Furring	C ½" Plaster on Wood Lath or on Metal Lath on 3/4" Furring Strips	D ½" Painted Plasterboard, no Plaster	E ½" Plaster on ½" Rigid Insulation	F ½" Plaster on 1" Rigid Insulation	G ½" Plaster on 2" Furring & 1/8" Rock Wool Fill	H ½" Plaster on 2" Furring & ½" Flexible Insulation	I ½" Plaster on 1½" Corkboard set in ½" Cement Mortar
		FURRING STRIPS USED									
1	Common Brick Throughout	4	0.63	0.57	0.33	0.35	0.24	0.18	0.12	0.21	0.15
2		8	0.44	0.39	0.26	0.26	0.20	0.16	0.11	0.16	0.13
3		12	0.31	0.30	0.22	0.22	0.17	0.14	0.10	0.13	0.12
4		16	0.24	0.24	0.18	0.19	0.15	0.13	0.09	0.12	0.11
5	4" Face Brick, remainder Common Brick	8	0.61	0.72	0.35	0.40	0.26	0.19	0.13	0.22	0.16
6		12	0.49	0.46	0.29	0.30	0.22	0.16	0.12	0.19	0.14
7		12	0.35	0.34	0.24	0.24	0.20	0.15	0.10	0.16	0.12
8		16	0.26	0.26	0.20	0.20	0.16	0.13	0.09	0.15	0.11
9	Limestone or Sandstone	8	0.68	0.62	0.35	0.37	0.25	0.18	0.13	0.21	0.15
10		12	0.56	0.51	0.31	0.33	0.23	0.17	0.12	0.20	0.14
11		16	0.47	0.44	0.28	0.30	0.21	0.16	0.12	0.19	0.14
12		24	0.36	0.34	0.24	0.26	0.19	0.15	0.11	0.17	0.13
13	Concrete	8	0.68	0.62	0.35	0.37	0.25	0.19	0.13	0.21	0.15
14		10	0.62	0.56	0.33	0.35	0.24	0.18	0.12	0.20	0.15
15		16	0.47	0.44	0.28	0.30	0.21	0.16	0.12	0.19	0.14
16		20	0.41	0.38	0.26	0.27	0.20	0.15	0.11	0.17	0.13
17	Hollow Clay Tile With 1" Stucco Exterior Finish	4	0.53	0.49	0.30	0.32	0.23	0.17	0.12	0.19	0.14
18		8	0.39	0.37	0.25	0.26	0.20	0.15	0.11	0.17	0.13
19		10	0.35	0.33	0.23	0.24	0.18	0.14	0.11	0.16	0.12
20		12	0.31	0.29	0.21	0.22	0.17	0.13	0.10	0.15	0.12
21		16	0.24	0.23	0.18	0.19	0.15	0.12	0.09	0.14	0.11
22	Hollow Gypsum Tile, 1" Stucco Ext. Fin.	4	0.33	0.31	0.22	0.23	0.16	0.14	0.10	0.16	0.12
23	Cinder Blocks With one Air Cell Across Heat Flow	8	0.42	0.39	0.26	0.27	0.20	0.16	0.11	0.18	0.13
24		12	0.36	0.34	0.24	0.25	0.19	0.15	0.11	0.17	0.13
25	Cement Blocks With one Air Cell Across Heat Flow	8	0.56	0.52	0.31	0.33	0.23	0.17	0.12	0.20	0.14
26		12	0.49	0.46	0.29	0.30	0.22	0.16	0.12	0.19	0.14
27	4" Brick or 4" Cut Stone with Hollow Clay Tile Backing of This Thickness	6	0.37	0.35	0.24	0.25	0.19	0.16	0.11	0.17	0.13
28		8	0.36	0.34	0.24	0.25	0.19	0.15	0.11	0.17	0.13
29		10	0.32	0.31	0.22	0.23	0.18	0.14	0.10	0.16	0.12
30		12	0.28	0.26	0.20	0.20	0.16	0.13	0.10	0.15	0.11
31	4" Brick or 4" Cut Stone with Concrete Backing of This Thickness	6	0.61	0.56	0.33	0.35	0.24	0.18	0.13	0.20	0.15
32		10	0.51	0.47	0.30	0.31	0.22	0.17	0.12	0.19	0.14
33		16	0.41	0.38	0.26	0.27	0.20	0.15	0.11	0.17	0.13
34	4" Brick Veneer — With Cinder Block Backing of This Thickness	8	0.35	0.33	0.24	0.24	0.19	0.14	0.11	0.16	0.12
35		12	0.31	0.30	0.22	0.22	0.17	0.14	0.10	0.16	0.12
36	4" Brick Veneer — With Cement Block Backing of This Thickness	8	0.45	0.42	0.27	0.29	0.21	0.16	0.12	0.18	0.13
37		12	0.40	0.38	0.26	0.27	0.20	0.15	0.11	0.17	0.13
38	4" Cut Stone With Common Brick Backing of This Thickness	8	0.37	0.35	0.24	0.25	0.19	0.15	0.11	0.17	0.13
39		12	0.28	0.27	0.20	0.21	0.16	0.13	0.10	0.15	0.12
40		16	0.23	0.22	0.17	0.18	0.15	0.12	0.09	0.13	0.11

CONCRETE FLOORS & CEILINGS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air still air both sides.

Construction No.	Construction Type	Material under Floor → / Thickness of Concrete	A Bare Concrete Floor	B Y.P. Flooring on Wood Sleepers Embedded in Concrete	C H.W. Flooring on Y.P. Sub-Flooring on Wood Sleepers Embedded in Concrete	D 1" Tile or Terrazzo on Concrete	E 1/4" Battleship Linoleum on Concrete
62	A	4	0.63	0.39	0.30	0.60	0.43
63	Floor Slab Exposed No Finished Ceiling Beneath.	6	0.57	0.37	0.28	0.55	0.40
64		8	0.52	0.35	0.27	0.50	0.38
65		10	0.48	0.33	0.26	0.46	0.35
66	A	4	0.58	0.37	0.28	0.55	0.40
67	½" Plaster Direct on Under Surface of Concrete	6	0.52	0.35	0.27	0.50	0.38
68		8	0.48	0.33	0.26	0.47	0.36
69		10	0.45	0.31	0.25	0.43	0.34
70	A	4	0.37	0.27	0.22	0.36	0.29
71	3/4" Plaster on Wood or Metal Lath (Suspended or Furred Ceiling)	6	0.35	0.26	0.21	0.34	0.28
72		8	0.33	0.25	0.21	0.32	0.26
73		10	0.31	0.24	0.20	0.30	0.25
74	A	4	0.24	0.20	0.17	0.24	0.21
75	½" Plaster on ½" Rigid Insulation (Suspended or Furred Ceiling)	6	0.23	0.19	0.16	0.23	0.20
76		8	0.22	0.18	0.16	0.22	0.19
77		10	0.22	0.18	0.16	0.21	0.19
78	A	4	0.15	0.13	0.12	0.15	0.13
79	½" Plaster on 1½" Corkboard in 1½" Cement Mortar on Concrete	6	0.14	0.13	0.11	0.14	0.13
80		8	0.14	0.12	0.11	0.14	0.13
81		10	0.14	0.12	0.11	0.14	0.12
82	B	4	1.05	0.52	0.37	0.96	0.59
83	Stone Concrete Directly on Ground, no Insulation, no Cinder Concrete	6	0.69	0.48	0.34	0.83	0.54
84		8	0.78	0.44	0.32	0.73	0.49
85		10	0.69	0.41	0.31	0.65	0.46
86	B — No Insulation	4	0.64	0.40	0.30	0.61	0.44
87	3" Cinder Concrete on Ground, Insulation on top of this, under Stone Concrete. — No Insulation	8	0.53	0.35	0.27	0.51	0.38
88	1" Rigid Insulat.	4 or 8	0.21	0.18	0.15	0.21	0.18
89	2" Corkboard	4 or 8	0.12	0.11	0.10	0.12	0.11

WOOD FRAME PITCHED ROOFS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air inside, 15 m.p.h. wind outside.

Construction No.	Roofing Surface / Ceiling Surface → / Type Insulation	A No Ceiling	B ½" Plaster on Wood or Metal Lath or 3/8" Plasterboard	C ½" Rigid Insulation With or Without ½" Plaster	D ½" Plaster on 1" Rigid Insulation	E ½" Plaster on 1½" Corkboard	F ½" Plaster on 2" Corkboard
90	Wood Shingles on Wood Strips	No Insulation	0.45	0.28	0.22	0.17	0.12	0.10
91	Asphalt Composition, Tile or Slate on Wood Sheathing	No Insulation	0.54	0.31	0.23	0.17	0.13	0.10
92	Wood Shingles on Wood Strips, or Asphalt Shingles, Composition Roofing, or Slate or Tile Roofing on Wood Sheathing	½" Flexible	0.25	0.16	0.15	0.12	0.098	0.084
93		1" Flexible	0.17	0.12	0.12	0.10	0.083	0.073
94		Aluminum Foil on one side of Air Space	—	0.23	0.18	0.14	0.11	0.092
95		3 5/8" Rockwool	—	0.063	0.059	0.054	0.050	0.045

MASONRY PARTITIONS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air both sides.

		No Plaster	Plastered One Side	Plastered Both Sides
96	4" Hollow Clay Tile	0.43	0.40	0.36
97	4" Common Brick	0.49	0.45	0.43
98	4" Hollow Gypsum Tile	0.29	0.28	0.27

WOOD FRAME WALLS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air inside, 15 m.p.h. wind outside.

Construction No.	Exterior Material / Interior Materials → / Type Sheathing	A Plain Wall - no Plaster ½" Plaster Board on Studding	B ½" Plaster on Wood Lath on Metal Lath, or on ½" Plaster Board.	C ½" Plaster on ½" Rigid Insulation on Studding	D ½" Plaster on 1" Rigid Insulation on Studding	E ½" Plaster on 1½" Corkboard on Studding	F Same as B, but with Stud faced one side with bright Aluminum Foil	G Same as B plus 3/8" Flexible Insulation against Sheathing	H Same as B plus 3 5/8" Rock Wool between Studding
41	Wood Siding or Clapboard — Wood Sheathing - 1"	0.25	0.24	0.19	0.15	0.11	0.19	0.17	0.060
42	Rigid Insulator Sheathing - ½"	0.23	0.22	0.18	0.14	0.11	0.18	0.16	0.059
43	Plasterboard Sheathing - ½"	0.28	0.27	0.20	0.16	0.12	0.21	0.18	0.062
44	Wood Shingles — Wood Sheathing - 1"	0.24	0.23	0.18	0.14	0.11	0.18	0.16	0.059
45	Rigid Insulator Sheathing ½"	0.19	0.19	0.15	0.12	0.10	0.15	0.14	0.056
46	Plasterboard Sheathing - ½"	0.24	0.24	0.19	0.15	0.11	0.19	0.16	0.060
47	Stucco — Wood Sheathing - 1"	0.31	0.29	0.22	0.16	0.12	0.22	0.19	0.063
48	Rigid Insulator Sheathing - ½"	0.27	0.26	0.20	0.16	0.12	0.20	0.18	0.062
49	Plasterboard Sheathing - ½"	0.40	0.38	0.26	0.19	0.14	0.27	0.22	0.066
50	Brick Veneer — Wood Sheathing - 1"	0.23	0.23	0.18	0.14	0.11	0.18	0.16	0.059
51	Rigid Insulator Sheathing - ½"	0.23	0.22	0.18	0.14	0.11	0.18	0.16	0.059
52	Plasterboard Sheathing - ½"	0.31	0.30	0.22	0.17	0.12	0.22	0.19	0.063

WOOD FRAME PARTITIONS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air both sides.

Construction No.	Type of Partitions → / Finish	A Single Partitions (one Side open)	B Double Partitions: Air Spaces Between Studding	C Double Partitions: Gypsum Fill Between Studding	D Double Partitions: One side of Stud Space Faced with bright Alum. Foil	E Double Partitions: ½" Flexible Insulation Between Studding (in Air Space)	F Double Partitions: 3 5/8" Rock Wool Fill Between Studding
53	Plaster on Wood Lath or 3/8" Plasterboard	0.60	0.33	0.11	0.24	0.21	0.063
54	Plaster on Metal Lath	0.68	0.38	0.11	0.27	0.22	0.065

WOOD FRAME FLOORS & CEILINGS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air both sides.

Construction No.	Ceiling Material / Type of Flooring → / Insulation Between Joists	A No Flooring	B Flooring (Y.P.) on Joists	C Flooring (Y.P.) on ½" Rigid Insulation on Joists	D H.W. Flooring on Y.P. Sub-Flooring on Joists	E 1/4" Battleship Linoleum on Y.P. Flooring
55	No Ceiling — No Insulation	—	0.45	0.27	0.34	0.34
56	Plaster on Wood Lath or 3/8" Plasterboard — No Insulation	0.60	0.28	0.20	0.24	0.24
57	Plaster on ½" Rigid Insulator — No Insulation	0.34	0.21	0.16	0.18	0.18
58	Metal Lath Plaster — ½" Rigid or Flexible	0.25	0.17	0.14	0.15	0.15
59	Metal Lath Plaster — Bright Aluminum Foil	0.29	0.22	0.17	0.19	0.19
60	Metal Lath Plaster — 3 5/8" Rock Wool	0.066	0.062	0.056	0.059	0.059
61	1½" Corkboard & Plaster — No Insulation	0.16	0.12	0.10	0.11	0.11

FLAT & BUILT-UP ROOFS

Figures are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air inside, 15 m.p.h. wind outside.

Construct No.		Thickness of Roof Deck	A No Insulation	B Rigid Insulation ½"	C Rigid Insulation 1"	D Rigid Insulation 1½"	E Rigid Insulation 2"	F Corkboard 1"	G Corkboard 1½"	H Corkboard 2"
99	Precast	1 5/8	0.83	0.37	0.23	0.17	0.14	0.22	0.16	0.13
100	Concrete	2	0.61	0.36	0.23	0.17	0.14	0.22	0.16	0.13
101		4	0.71	0.34	0.22	0.17	0.14	0.21	0.16	0.12
102		6	0.64	0.32	0.21	0.16	0.13	0.20	0.15	0.12
103	Wood	1	0.50	0.28	0.20	0.15	0.12	0.19	0.14	0.11
104		1½	0.37	0.24	0.17	0.14	0.11	0.17	0.13	0.11
105		2	0.32	0.22	0.16	0.13	0.11	0.16	0.12	0.10
106		4	0.18	0.14	0.12	0.10	0.085	0.11	0.094	0.081
107	2" Gypsum Fiber Concrete on ½" Plasterboard	2½	0.38	0.24	0.18	0.14	0.12	0.17	0.13	0.11
108		3½	0.31	0.21	0.16	0.13	0.11	0.15	0.12	0.10
109	Flat Metal		0.94	0.39	0.24	0.18	0.14	0.23	0.16	0.13
110	Precast	1 5/8	0.42	0.26	0.18	0.14	0.12	0.18	0.14	0.11
111	Concrete	2	0.42	0.26	0.18	0.14	0.12	0.18	0.14	0.11
112		4	0.39	0.25	0.18	0.14	0.12	0.17	0.14	0.11
113		6	0.37	0.24	0.17	0.14	0.11	0.17	0.13	0.11
114	Wood	1	0.32	0.21	0.16	0.13	0.11	0.15	0.12	0.10
115		1½	0.26	0.23	0.15	0.12	0.10	0.14	0.11	0.095
116		2	0.24	0.21	0.14	0.11	0.097	0.13	0.11	0.091
117		4	0.15	0.12	0.10	0.088	0.078	0.10	0.085	0.074
118	2" Gypsum Fiber Concrete on ½" Plasterboard	2½	0.27	0.19	0.15	0.12	0.10	0.14	0.11	0.096
119		3½	0.23	0.17	0.13	0.11	0.096	0.13	0.11	0.090
120	Flat Metal	—	0.45	0.27	0.19	0.15	0.12	0.18	0.14	0.11

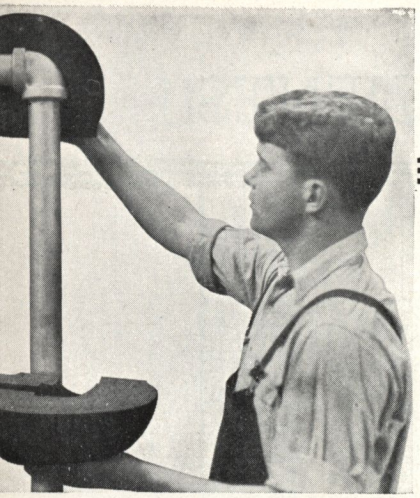
WINDOWS & SKYLIGHTS

121	Single Sash	Double Strength Window Glass 3/32 in Thick	1.24
122	Double Sash		0.58
123	Triple Sash		0.38
124	Double Glazed Single Sash		0.63
125	Plate Glass 3/8 in Thick		1.19

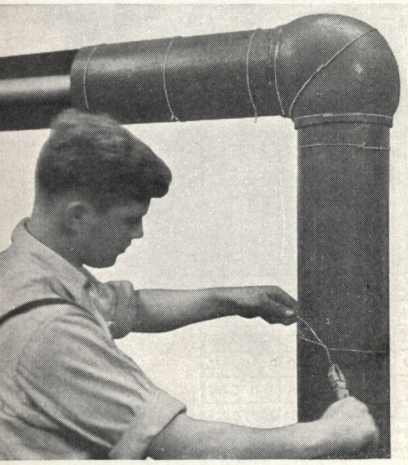
WOOD & METAL DOORS

126	Thin Wood Doors with Glass	1.24
127	1" Wood Doors	0.70
128	2" Wood Doors	0.45
129	3" Wood Doors	0.30
130	Metal and Asbestos Doors	0.65

Figures for constructions 121 to 130 are in B.t.u. per hour per square foot per degree temperature difference, air to air, still air inside, 15 m.p.h. wind outside.



Applying Cork Covers on Screwed Fittings



Securing Covering with Copper Clad Wire



Smoothing Joints and Chipped Edges with Seam Filler and Finishing with Corinco Cork Covering Paint



CORINCO CORK PIPE

EFFECTIVE COLD LINE INSULATION

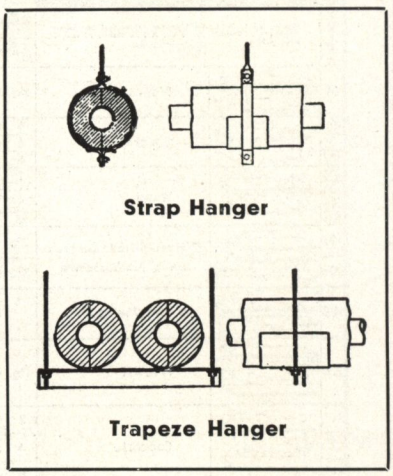
Corinco Cork Pipe Covering is another link in the chain of protection against refrigeration loss. It has the same qualities and is made with the same precision as Corinco Corkboard. It is equally successful in resisting the attacks of moisture and ice—the greatest foes of insulation.

As a result of the great savings created by cork in the amount of refrigeration required, it has been universally accepted as standard insulation on brine and ammonia lines, on drinking water systems and cold water lines, and on freon lines.

Corinco Cork Pipe Covering is molded to fit with precision snugness on all sizes of pipe and all types of fittings. It is furnished in three thicknesses to meet the varying service conditions as shown in the table below.

PIPE HANGERS

All pipe lines to be insulated with Corinco Covering should be supported by hangers and the covering protected by a sheet iron shield where the pipe rests in the hanger. This shield should be shaped to fit the covering and should extend 4" away from each side of the hanger (see illustration below) and should extend up the sides to the level center of the pipe. It is not advisable to apply the hanger direct to the pipes.



Strap Hanger

Trapeze Hanger

TABLE I: TABLE OF THICKNESSES

Type of Cork Pipe Covering	Thickness in Inches*	Temperature Range
Ice Water Thickness	1.21 to 1.81	35°F. or above
Brine Thickness	1.71 to 3.00	35°F. to 0°F.
Special Thick Brine	2.52 to 4.00	0° F. or below

* Depending on variations in pipe sizes.

TABLE II: TABLE FOR SPACING

Type of Cork Pipe Covering	Space between parallel pipes	Space between pipes and adjacent surfaces
ICE WATER THICKNESS		
Screwed Fittings up to and including 6-inch	6 inches	4 inches
Screwed Fittings larger than 6-inch	10 inches	5 inches
Flanged Fittings	10 inches	5 inches
BRINE THICKNESS		
Screwed Fittings up to and including 6-inch	8 inches	6 inches
Screwed Fittings larger than 6-inch	14 inches	8 inches
Flanged Fittings	14 inches	8 inches
SPECIAL THICK BRINE		
Screwed Fittings up to and including 3-inch	10 inches	8 inches
Screwed Fittings larger than 3-inch	18 inches	12 inches
Flanged Fittings	18 inches	12 inches

CORINCO MOLDED CORK COVERING AND CORK CENTERS

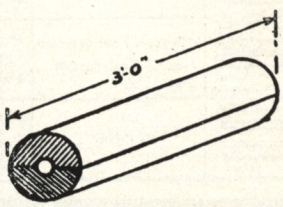


Fig. 1
Three Sectional Feet of Molded Corinco Cork Covering

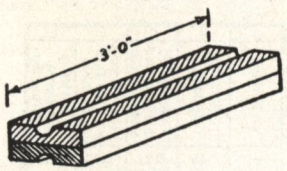


Fig. 2
Three Sectional Feet of Molded Corinco Cork Centers

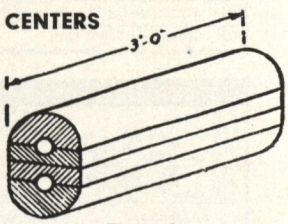


Fig. 3
Insulation of Pipes too close together for Regular Sectional Corinco Cork Covering

SPECIFICATION FOR THE APPLICATION OF CORINCO CORK COVERING

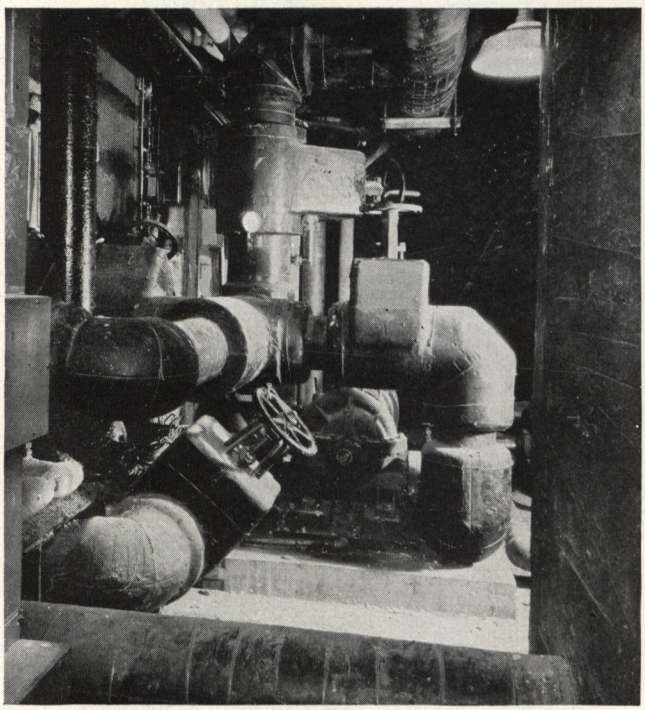
GENERAL

All pipe and fittings must be spaced as indicated in Table II.; they shall be cleaned of all rust, scale and dirt, dry and free of frost, and tested for tightness before covering is applied. Outside hangers and shields shall be used as illustrated. Where pipe passes through an insulated wall of a refrigerated room, the covering shall continue 6″ beyond the wall inside of room. Openings in walls and floors for insulated pipes must be large enough to permit full thickness of insulation.

APPLICATION

FITTINGS—Apply cork covers on screwed fittings first, cementing all joints with Corinco Waterproof Cement, and secure in place with copper clad steel wire. Fill in all spaces between cork covers and fittings with Corinco Brine Putty.

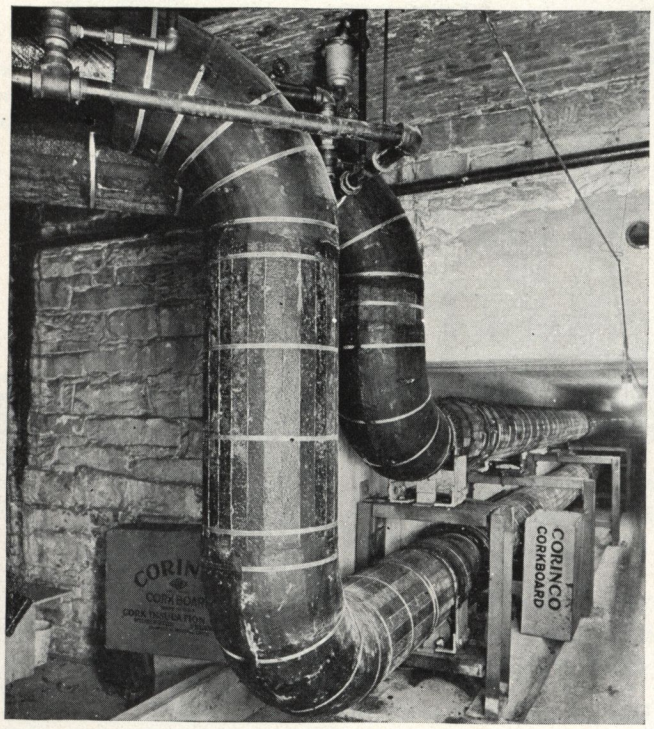
Flanged fitting covers shall be applied after covering on piping has been installed. Covers shall be applied in a similar manner as for screwed fitting covers, with the exception that they shall rest upon outside of covering on pipe runs.



Molded and Factory Assembled Pipe Covering

PIPE RUNS—Apply sectional covering on pipe runs butting tightly against screwed fitting covers and against the flange bolts of flanged fittings. All end joints shall be broken by starting with half section pieces 18″ long, following with full length sections 36″ long. Longitudinal joints shall be vertical with pipe. All joints, both end and horizontal shall be cemented with Corinco Waterproof Cement and covering secured in place with copper clad steel wire applied straight and tight, using at least six wires per section.

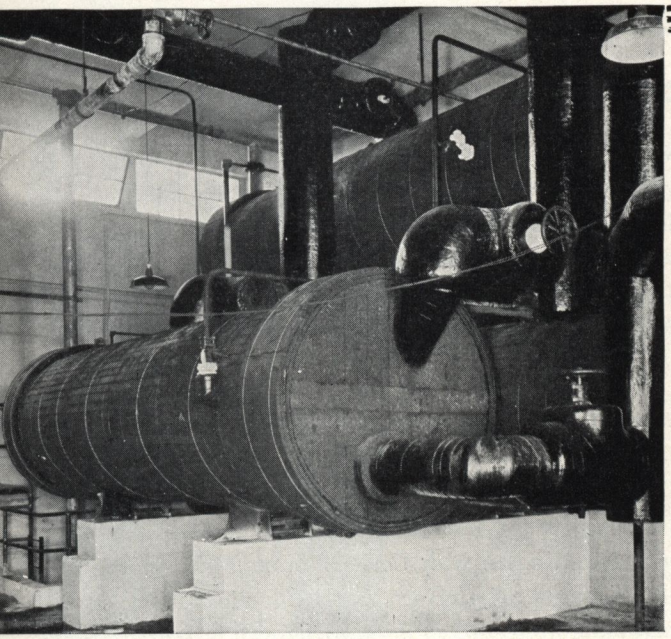
FINISH—To complete the installation, fill and smooth all seams and chipped edges with Corinco Seam Filler and then apply one coat of Corinco Cork Covering Paint. (Where additional protection or decorative finish is desired consult our nearest branch office).

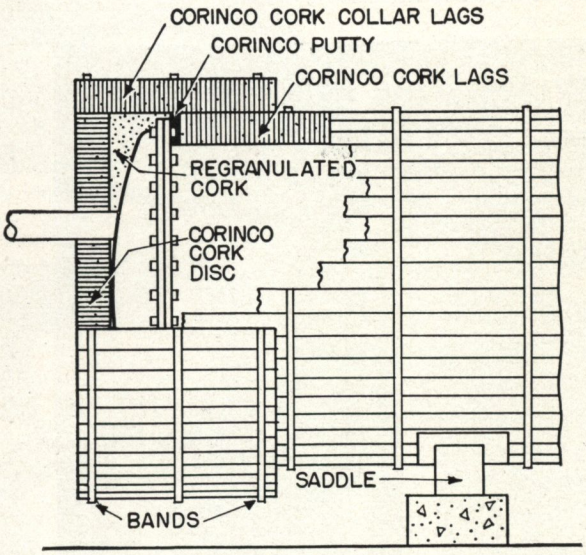


Lagged Pipe Covering Assembled on the Job

NOTE

For pipe and fittings which are not molded or factory assembled, Corinco Cork Lagging will be furnished. Lagging shall be carefully assembled on the job and applied as for fitting covers and sectional coverings prepared at the factory.





Horizontal Brine Cooler

Specifications for insulating Brine Coolers and Cylindrical Tanks

Specification No. 1

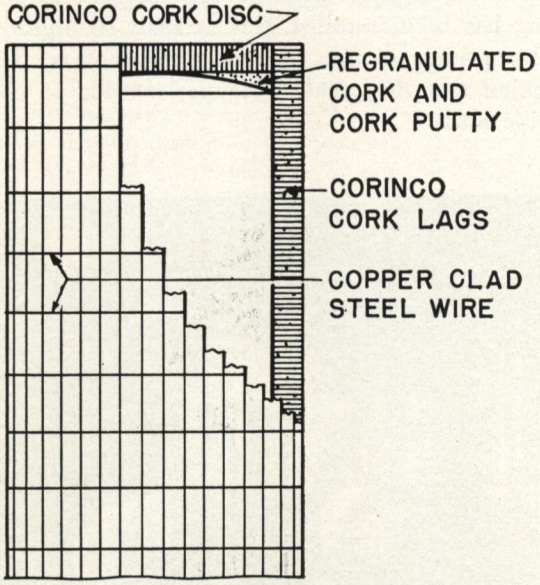
BRINE COOLERS

The cylindrical body shall be insulated with one layer of Corinco Cork Lagging. Lagging shall be beveled to the proper diameter and shall be coated inside and out with mineral rubber. The lags shall be applied with Corinco Waterproof Cement between all joints and additionally secured with galvanized iron bands approximately 1″ wide, drawn up tight with clips and bolts. These bands shall be spaced approximately 12″ apart.

The flanged ends of the cooler shall be insulated with Corinco Cork Discs supported by a cork lagging collar applied over the flanges. This lagging shall extend to the outer surface of the disc and have a bearing on the body lagging at least 12″. The collar lags and discs shall be applied in a similar manner as specified for body lags and be removable. All spaces between tank and lagging shall be filled with Corinco Brine Putty and spaces between discs and tank ends must be filled with regranulated cork.

Finish

After all insulation is applied, all chipped edges shall be filled and smoothed with Corinco Seam Filler and the entire surface then given one coat of Corinco Cork Covering Paint.



Vertical Cylindrical Tank

Specification No. 2

CYLINDRICAL TANKS: WELDED ENDS

The cylindrical body shall be insulated with one layer of Corinco Cork Lagging, beveled to the proper diameter and coated inside and out with mineral rubber. The lagging shall be secured to the tank with copper-clad steel wires spaced not more than 9″ apart. The ends shall be insulated with Corinco Cork Discs supported in place by the body lagging which shall extend beyond the tank to the outer surface of cork disc.

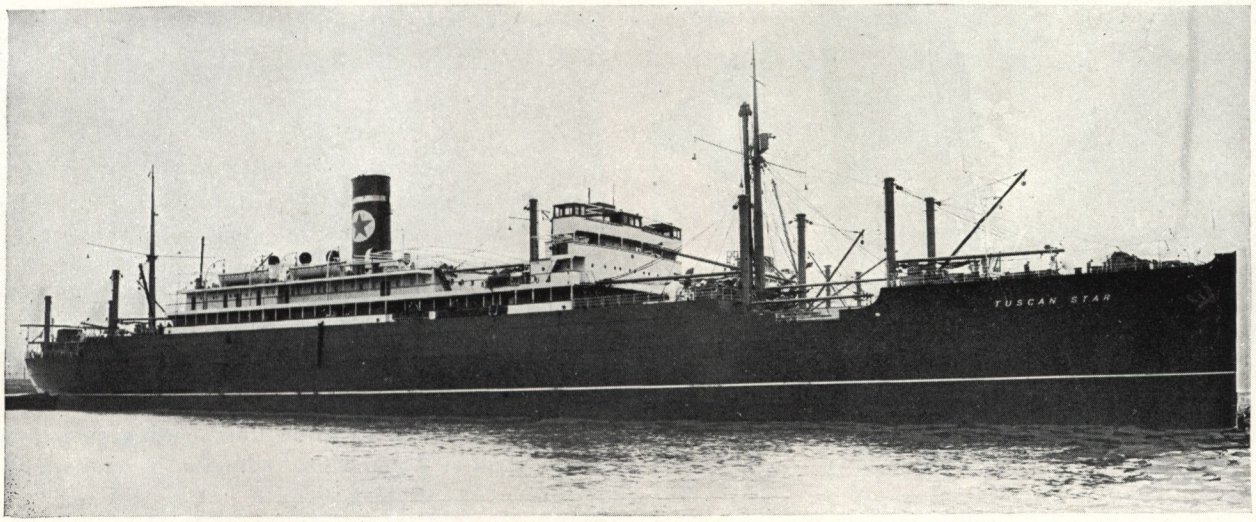
Finish

Seams shall be filled and all chipped and raw edges smoothed with Corinco Seam Filler and then the entire surface given one coat of Corinco Cork Covering Paint.

RECOMMENDED THICKNESSES

Thickness	Temperature Range
2 inches	55° to 65° Fahrenheit
3 inches	32° to 55° Fahrenheit
4 inches	20° to 32° Fahrenheit
5 inches	5° to 20° Fahrenheit
6 inches	—5° to +5° Fahrenheit
8 inches	—15° to —5° Fahrenheit

CORINCO MARINE INSULATION

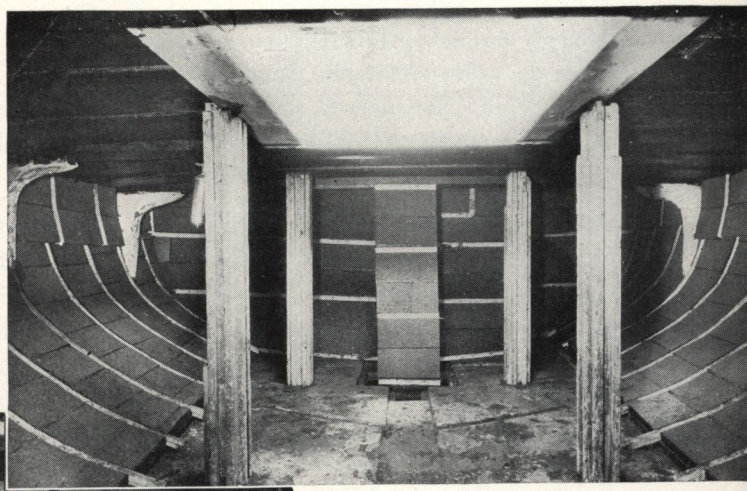


The "Tuscan Star"—595,000 Cubic Feet of Insulated Space

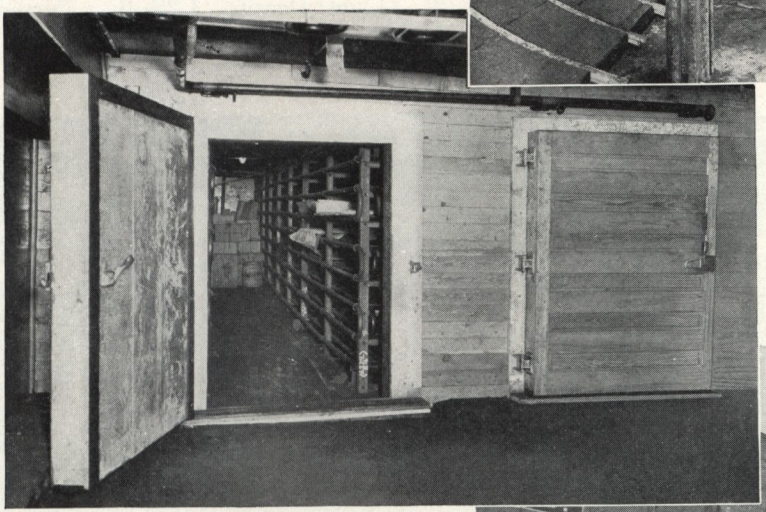
To prevent spoilage of perishable goods in transit, large ocean liners and freight carrying vessels have installed low temperature insulation plants. Corinco Corkboard has been used extensively for this service.

Entire cargo holds have been insulated without impairing the efficiency of the vessel. Holds have been insulated in such a manner that automobiles and other large cargo can be accommodated when perishables are not carried.

The Cork Insulation Co., Inc., has handled complete installations which included Corinco Corkboard and Corinco Cork Pipe Covering on many types of vessels—from fishing schooners to trans-oceanic liners.

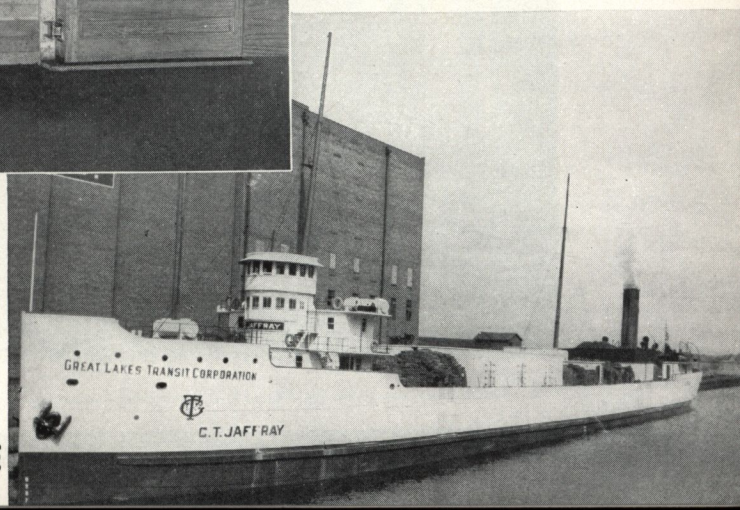


Fishing Schooner Insulated With Corinco Corkboard

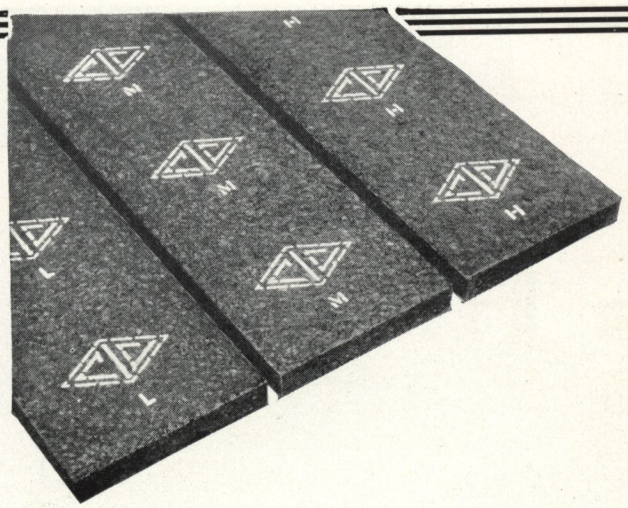


Freezing Compartments in Cargo Vessel

One of Several Great Lakes Transit Corporation Ships Insulated by Cork Insulation Co.



For information and detailed specifications consult the Marine Division of our nearest branch office



NOISE AND VIBRATION

Modern business, realizing that noise and vibration are often the cause of fatigue, carelessness and accidents, has taken definite measures to combat them. One of the most effective methods of eliminating noise is to isolate vibration which, in many cases, is the direct cause.

Aside from the above, vibration has a destructive effect on the machinery itself to say nothing of its adverse effect upon the building structure. Since cork contains over 50% air by volume, which is hermetically sealed in millions of tiny cells, it has been successfully used as a vibration-absorbing cushion. This cork cushion never "hardens" or "cakes", but retains its resiliency indefinitely.

CORINCO MACHINERY ISOLATION CORKBOARD

Corinco Machinery Isolation Corkboard is especially designed to reduce machinery vibration and noise. It is composed entirely of pure, granulated cork which has been carefully screened, placed in molds, compressed to the proper density, and baked. Its density is greater than that of ordinary corkboard to support machinery loads. Properly installed Corinco Machinery Isolation Corkboard will appreciably reduce noise and vibration.

Sizes

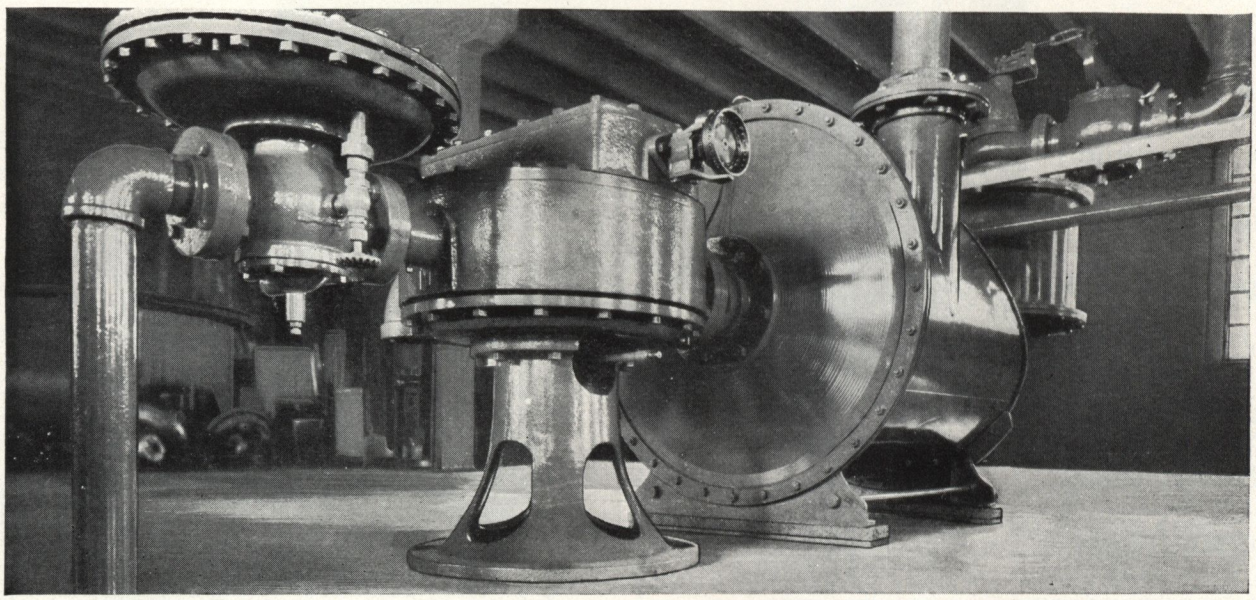
Corinco Machinery Isolation Corkboard is manufactured in our plant at Wilmington, Delaware, in standard 12 x 36 inch units and in thicknesses of 1, 1½, 2, 3 and 4 inches. These sizes are all available in three densities: LIGHT, MEDIUM, and HEAVY. These densities, to meet various requirements, are based on the number of pounds of cork compressed into one board foot.

Standard size boards can be cut or sawed in the same manner as lumber to any desired dimension. Larger mats can be made in sections and cemented together if so required.

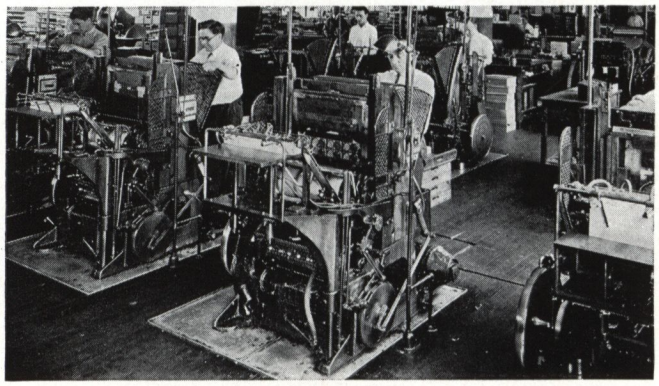
Shipping

To prevent breakage and damage Corinco Machinery Isolation Corkboard is shipped in strong fibre cartons each containing 72 board feet. Average shipping weights per board foot are as follows:

Light Density, 1.25 lbs.; Medium Density, 1.45 lbs.; Heavy Density, 1.75 lbs.



ISOLATION CORKBOARD
NOISE AND VIBRATION



WHERE REQUIRED

The scope of vibration and noise abatement is practically unlimited. In every phase of modern construction, manufacture and operation, this problem is encountered. In the design of hotels, hospitals, libraries, etc., noise must be reduced to a minimum. In factories the vibration of drill presses, motors, fans, pneumatic hammers, etc. must be eliminated. In short, the applications of corkboard for the isolation of noise and vibration are innumerable.

DENSITY AND THICKNESS TO USE

(Tests made on 2 in. material.)

Loads in Lbs. per Sq. Ft.	COMPRESSION DATA Deformation in Inches		
	Light Density	Medium Density	Heavy Density
5,000	.20	.15	.11
10,000	.53	.35	.26
15,000	.80	.55	.43
20,000	.95	.73	.58
25,000	—	.85	.70
30,000	—	.94	.79
35,000	—	—	.86

DENSITY FOR VARIOUS TYPES OF MACHINERY

For average conditions, we recommend the various grades as follows:

Density	*Type of Machinery*
LIGHT	Small motors, fans, etc.
MEDIUM	Light machinery, medium size generators, motors, fans, etc.
HEAVY	Large and heavy machines, compressors, motors, etc.

INSTALLATION DETAILS

The details below illustrate typical methods of using Corinco Machinery Isolation Corkboard for the installation of light, medium and heavy machinery.

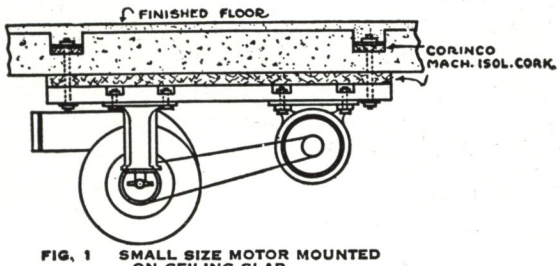


FIG. 1 SMALL SIZE MOTOR MOUNTED ON CEILING SLAB.

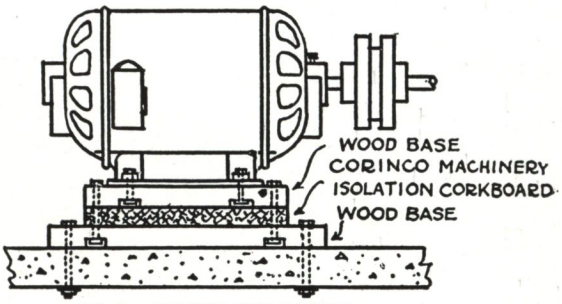


FIG. 2 MEDIUM SIZE MOTORS MOUNTED ON CONCRETE FLOOR.

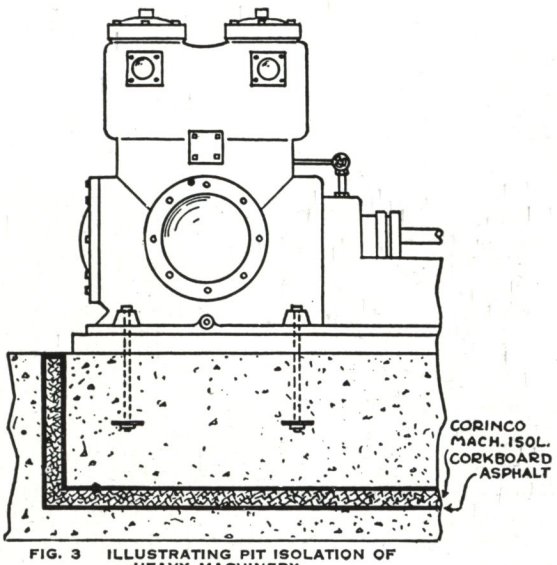


FIG. 3 ILLUSTRATING PIT ISOLATION OF HEAVY MACHINERY.

In determining the proper grade to use, consideration must be given to surroundings, size and weight of machine, operating speed, etc. Our Engineering Department is always glad to submit sketches showing how Corinco Machinery Isolation Corkboard should be installed on specific jobs.

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17th & Sansom Streets

CHICAGO, ILL.
Corinco Insulation Co., Inc.
320 North La Salle Street

LOS ANGELES, CAL.
4804 De Kalb Street

ST. LOUIS, MO.
2711 Olive Street

WASHINGTON, D. C.
1425 "H" Street, N. W.

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